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USE OF DRUGS IN DISTURBANCES OF CARDIAC ACTION.

On the other hand, if drugs have been a failure in diseases of the heart, and have failed to improve contractile power in the heart muscle, they have found a great field of usefulness in connexion with disturbances of the cardiac action. These disturbances may be associated with sound or diseased hearts. They may be disturbances of rate or of rhythm or of both. They may arise in the heart itself, or be the result of defective blood-supply to the heart, or be caused by some condition of the blood, or may be nervous in origin. They may be indicated by an increase of the heart rate or a slowing. These disturbances are familiar to all under the names of auricular flutter, auricular fibrillation, heart-block, paroxysmal tachycardia, extra-systoles, &c. We may sum up these disturbances as being due to an abnormal rhythm or tachycardia or bradycardia. Unconsciously in the past many have successfully treated these disturbances, while they thought they were treating the disease of the heart or increasing its muscular power. Empirically the benefit was obtained in certain cases by counteracting the bad effects which these disturbances were producing in the heart's action, although the modus operandi was not understood or was erroneously interpreted. Thus, in cases of delirium cordis (now described as auricular fibrillation) digitalis was looked on as a drug which steadied the heart and improved the muscular tone and the contractile power. At the present time we are content to treat the disturbance which has arisen in connexion with auricular fibrillation, to reduce the excessive number of ventricular beats which have developed, and when this has been accomplished we can safely leave the muscular tone and the contractile power of the heart to do the rest.

In all of these disturbances the chief factor to be considered is the effect which the disturbance has on the efficient action of the ventricles. A marked disturbance of the heart may be present—for example, extra-systoles—but if the ventricular action is efficient the patient has no signs or symptoms of cardiac failure. On the other hand, if the ventricular action is deficient, if it is unequal to the carrying on of the circulation, symptoms and signs of cardiac failure will begin to appear. The effect on the ventricles is the standard by which we measure the importance of the disturbance present and decide as to whether treatment is called for or not. Similarly when such a real disturbance is present the success of our treatment will depend on the extent to which we can remove or check the disturbance, and thus leave the ventricle free and unhampered to carry on its work.

If the site of origin of these disturbances of rate and rhythm be inquired into, it will be found that the vast majority arise in the supra-ventricular tissues—that is, those parts of the heart which lie above the purely contractile tissues of the right and left ventricles. This applies whether the disturbance arises from the heart itself or is produced by outside causes through the blood-stream or nerves. In this sense it may be said that the ventricular muscle is protected to a great extent from disturbing factors which fall first of all on the supra-ventricular tissues. It follows, therefore, that disturbances in the rate and rhythm of the ventricles are always secondary to and dependent on some form of disturbance in the supra-ventricular tissues. These tissues are collectively described as the conducting tissues of the heart, and include from start to finish the sino-auricular (*s.a.*) node, the auricles, the auriculo-ventricular (*a.v.*) node, and the *a.v.* bundle. They are called the conducting tissues because their function is to conduct the impulse which starts the heart beat at the *s.a.* node through the walls of the auricles (which are also feebly contractile) to the *a.v.* node and thence through the *a.v.* bundle to the contractile tissues of the ventricles. It is on the regular and orderly functioning of these conducting areas of the heart that the ventricles depend for their efficient action. It is as a result of some disorder or disturbance in the conducting areas that symptoms of cardiac failure appear and medical advice is sought in a very large proportion of all cardiac cases.

The conducting tissues are of great importance also from the fact that it is on them that the vagus, the chief controlling nerve of the heart, acts. If the vagus nerve be stimulated there follows a depression of the *s.a.* node so that the heart rate is slowed, and also a depression of the conducting areas so that the *a.v.* interval is lengthened. As the commonest cause of heart weakness and failure is over-activity or over-excitability of some part of the conducting tissues, it would be of the greatest advantage to us clinically if we had some drug whose effects would tell on the conducting tissues more especially, by enforcing the controlling action of the vagus nerve. Such a drug we possess in digitalis.

FAILURE OF COMPENSATION.

The signs and symptoms of failure of compensation are well known, but what is "failure of compensation," and on what does it depend? We shall all agree that there is a failure on the part of a heart already diseased to carry on the circulation successfully or as successfully as the lesions present had previously allowed. You will find it stated that an increased cardiac rate is one of the commonest evidences of cardiac insufficiency or failure of compensation. You will also find it stated that the ventricular action is so feeble that the heart never empties itself, and as compensation for this the rate is increased. Both of these statements are misleading. An increased cardiac (ventricular) rate is not an evidence of failure of compensation, but it is the commonest cause. When ventricular action is feeble an increase in rate will never strengthen it, for one finds that pari passu with the increase of rate the

ventricular contractions become feebler and less effective. There is no clinical evidence that ventricular action is ever improved by increasing the rate of the heart. In the case of healthy hearts muscular effort on the part of the body generally, as in running, will at once lead to increase of rate, which ensures a rapid flow of blood through the tissues. It is this rapid flow of blood which enables the muscular activity to go on, but a time comes when the heart can stand the rapid rate no longer and must have rest. In the case of diseased hearts we find this inability to maintain a rapid rate successfully much more pronounced, so that no attempt is ever made in therapeutics to improve the cardiac power by increasing its rate above the normal.

The term "failure of compensation" implies that the compensatory changes which the heart has brought about by its own inherent powers have broken down, but is this really so? Take the familiar example of auricular fibrillation with a sudden onset which is the commonest type of failure of compensation. Here the patient passes quickly from a condition of comparative comfort into one of the greatest cardiac distress. This development is to be explained not as due to any change in the compensatory apparatus, but as due to the onset of a new rhythm with a marked increase of rate, which has thrown the heart out of working order. The compensatory changes are ready to resume their function as soon as the disturbing factor has been removed or its effects have been controlled by slowing of the ventricular rate. The same applies in the majority of cases we meet with in practice, and the question of compensatory failure so called may be eliminated from our investigation into the therapeutic uses of digitalis. In a minority of the cases we are called on to treat there is a failure of compensation when the muscular power of the ventricles finally gives out, without other disturbance, but this is not the class of case in which we can hopefully use digitalis, or anything else.

Failure of compensation is a misleading term in the majority of cases, but it has established itself and we must accept it and explain as clearly as possible the condition referred to. I should describe that condition as the development of symptoms of cardiac failure owing to a disturbance in the conducting tissues causing a change in the rate or the rhythm of the heart, and accompanied by a rapid ventricular rate. In some cases there may be a disturbance of the rhythm of the heart without any material change in the rate of the ventricles, and with possibly an actual slowing of the ventricular rate. In such cases we do not find that digitalis as a therapeutic agent is of any use. The value of digitalis is shown in those cases in which there is a disturbance in the conducting tissues causing a rapid ventricular rate. When we say that digitalis is beneficial in cases of failure of compensation it will be found that the cause of the failure is the disturbance just described.

MODE OF ACTION OF DIGITALIS.

It will be admitted that as practitioners of medicine it is very desirable to know in the case of any particular drug what its mode of action is, what type of case is suitable for its use, and what the exact results are which may be looked for. As regards digitalis, this has now been achieved. On the other hand, it is not desirable that we should go on using this drug in unsuitable cases or indiscriminately in all cases of heart disease merely because of some physiological or pharmacological experiments, or because of dogmatic and text-book teaching. I shall try to give you a practical outline of the uses of digitalis in clinical medicine, dealing with the mode of its action in therapeutic doses, the class of case in which it may be expected to prove useful, and also the class of case in which no benefit may be expected.

I would ask you first of all to dismiss from your minds any impression you may have gathered that digitalis is a great cardiac tonic which directly augments the tonicity or the contractile power of the heart. Neither digitalis nor any other drug has been shown to have any such action in clinical work. One can go further and say as regards digitalis that it has not been proved to have any direct therapeutic action on the heart muscle. On the other hand, there is an accumulation of evidence, clinical and otherwise, amounting to proof, that digitalis stimulates the vagus, the great controlling nerve of the heart, probably by acting on the vagal centre, and more especially the vago-cardiac centre. The result of stimulation of the vagus is a depression or inhibition of the activity of the supra-ventricular tissues we have described as conducting. This result is manifested by a slower production and discharge of impulses at the sino-auricular node, the pacemaker of the heart, and by a slower rate of progress of the impulse through the conducting tissues, so that the *a.–v.* interval is lengthened. Thus the final and important result of stimulation of the vagus is a slowing of the ventricular rate. This action is much more pronounced in hearts with an abnormally rapid rate than in hearts with a normal rate.

If we approach the question from the clinical side we find in cases suitable for digitalis that there is a rapid ventricular rate, and our object is to produce its slowing. In order to stimulate the vagus it is no use giving small doses, such as five drops of tincture of digitalis three times a day. That may lead to a gentle but ineffective stimulation of the vagus, but what we desire is to get the vagus thoroughly gripped by digitalis so that its full controlling powers are brought out. Full doses of digitalis are called for if good therapeutic results are to follow. Assuming that these have been given, we shall find the vagus inhibition will fall first on the *s.a.* node, and will limit the rate of production and discharge of stimuli. The rate of the heart beat having been reduced at its source, fewer stimuli reach the ventricles, and the result is a reduced rate of the ventricular contractions. In many cases of disease the *s.a.* node is not in action as the heart beat starts elsewhere—for example, in auricular flutter and fibrillation. In these cases the vagus will act on some other part of the conducting tissues, especially the *a.v.* node and bundle, and will diminish the rate of conduction through those tissues. The result will be the same, a slowing of the rate of the ventricle owing to the blocking of many of the stimuli which had been reaching it. This, then, is the action of digitalis which we apply therapeutically. Digitalis is given in full doses, it stimulates the inhibitory action of the vagus, which leads to a depression of the over-activity in the supra-ventricular tissues, and results in a slowing of the ventricular rate. You may take it as an aphorism—no slowing of the ventricular rate, no benefit from digitalis.

CLASS OF CASE WHERE DIGITALIS MAY PROVE USEFUL.

Reference has already been made to the absence of any specific drug treatment in acute and chronic heart diseases. In the treatment of disease of the pericardium, the myocardium, and the endocardium, as such, digitalis plays no part. Far less is it to be regarded as the routine treatment on the detection of a systolic murmur, a dilated heart, or a re-duplicated second sound—as some of us are old enough to have seen done. The class of case suitable may be described as that in which certain disturbances have arisen in the supra-ventricular tissues and have led to an increase in the ventricular rate. The normal mechanism of the heart beat has been thrown out of order, it may be by a disturbance of the rate or a disturbance of the rhythm, but if the result is an increase of the ventricular rate with signs of cardiac failure, then digitalis is called for. I do not state that all cases falling under this category will benefit from digitalis, or that they will show that marked slowing of the ventricular rate which is our aim and object. On the contrary, we shall find later that certain conditions may modify or prevent the beneficial action of digitalis, and that many cases which appear suitable fail entirely to react to digitalis, probably owing to the presence of unknown factors. There are still many problems left about the action of digitalis for our younger colleagues to work at and solve. In the past great emphasis was laid on valvular lesions, and special indications were given as

to the line of treatment of the various lesions with digitalis. In the use of digitalis we now pay no attention to the valvular lesion, but deal only with the disturbance present in the heart. Digitalis is equally serviceable whether the valvular lesion be mitral regurgitation or mitral stenosis or aortic regurgitation or a combination of these, provided that for other reasons it is called for. No variety of heart disease, per se, is an indication for the use of digitalis, but in every form of heart disease accompanied by a rapid ventricular action digitalis may be useful.

A good deal of discussion has taken place as to whether digitalis is as effective in cases of rapid and regular heart action as it is in cases of rapid irregular action. The great example of the latter is auricular fibrillation, and the reputation of digitalis is based on its beneficial action in that condition. The teaching of Mackenzie on that subject is now universally accepted, and he has shown that the benefits to be obtained from digitalis are more strikingly seen and more hopefully expected in cases of auricular fibrillation associated with rheumatic disease of the heart than in any other condition. It is generally agreed that the beneficial effect of digitalis in this connexion is by the slowing of the ventricular rate through the inhibitory action of the vagus acting on the *a.v.* node and bundle and the induction of partial heart-block. In the case of auricular flutter we have a condition in which the disturbance in the auricles leads to a great increase of rate but a regular action. The ventricular result is always an increase of rate, but the contractions of the ventricle may be regular or irregular. In this condition, also, the results of digitalis treatment are very satisfactory. In these two conditions the rhythm of the heart beat has been disturbed because the starting-point is always ectopic, as Lewis calls it, that is to say, at some point away from the normal pacemaker the *s.a.* node. In another class of case the rhythm of the heart is normal, but the rate is greatly increased although perfectly regular. I have recorded a series of cases in early life, and Dr. Henry Christian has recorded others in later life, in which great benefit was obtained from digitalis in diseased hearts with a rapid and regular action. In such cases the presumption is, and tracings confirm it, that the inhibitory action of the vagus tells on the *s.a.* node and depresses its activity. So that when other conditions are favourable the presence of a regular cardiac action as opposed to an irregular one should not be considered a contra-indication to the employment of digitalis.

Cases of chronic heart disease as met with in practice may be divided into two classes, those which are the result of rheumatic infection and those which are not. The second class comprises all the chronic degenerative changes met with in advancing years which are late infective, or toxic, or senile in origin. If we take the cases in which digitalis appears to be called for, it will be found—as generally agreed—that the beneficial effects are more strikingly manifested in those with a rheumatic origin than in those where other forms of degenerative change are present. Why this is so is somewhat difficult of explanation. If the views previously expressed be accepted, we do not expect digitalis to act directly on the heart but only on the vagus nerve. There is no suggestion that the vagus itself has been specially affected by the rheumatic infection or by chronic degenerative changes of any other kind. It would appear, therefore, that in rheumatic cases the cardiac tissues, and more especially the supra-ventricular tissues, have been so altered by the rheumatic infection as to make them more susceptible to the inhibitory action of the vagus nerve when stimulated by digitalis. If we take the cases in these two classes in which digitalis has failed to do good, although pushed to its full effect on the vagus and under conditions when the cardiac symptoms seemed favourable, it will be found that the majority of these failures occur in the non-rheumatic cases.

If we say that digitalis is suitable in cases of disturbances of the cardiac action, which occur in a diseased heart, and which are manifested by a continuously rapid rate of the ventricles, and a weakening of the ventricular contractions, we sum up the cases in which digitalis has been found to be and proved to be of great service. If this limitation be accepted you will see that a great number of conditions are ruled out. By specifying a diseased heart we at once rule out all the functional disorders of the heart, and the diseases of an extra-cardiac nature, which react on the heart. By specifying a continuously rapid rate, we exclude all forms of heart disease associated with a slow pulse, such as heart-block. We also exclude cases in which the heart-rate is normal, for it is my experience that digitalis cannot be hopefully or beneficially used in such cases. Paroxysmal tachycardia is also excluded, and rightly, because digitalis will do good only if and when the paroxysms are changed into a prolonged and continuous tachycardia. By specifying weakened and inefficient contractions of the ventricles we exclude those cases in which a diseased heart is merely quickened in its rate—as it is on any call for extra effort or under nervous excitement—without any other effect on its efficiency. It is only when the rapid rate leads to the production of some symptoms on the part of the patient, an evidence that the circulation is impaired, that digitalis is called for and will prove really serviceable. Some may think that I have reduced the use of digitalis to a very small and select number of cases, but if you analyse your own cases in which digitalis has had a demonstrably beneficial effect, you will probably find that they fall into the category defined above as suitable for digitalis.

CERTAIN FACTORS WHICH INTERFERE WITH THE ACTION OF DIGITALIS.

It must not be assumed that in all cases of weak and rapid cardiac action digitalis is called for. It should not be made a routine practice to give digitalis in all such cases. The results will often be disappointing, and further, the patient will often be needlessly alarmed when he discovers that digitalis has been given. For the public are now firmly convinced that the use of digitalis implies the presence of heart disease, and that heart disease means a liability to drop dead at any moment. In cases of chronic alcoholic poisoning one frequently meets with certain symptoms suggestive of cardiac failure such as an enlarged liver, a rapid heart, and a feeble pulse. To give digitalis in such a condition of poisoning is useless and it needlessly alarms the patient.

The chief factor which interferes with the action of digitalis is a condition of active toxæmia. In Graves's disease we have a cardiac disturbance which would appear suitable for digitalis therapy—namely, a persistently rapid heart. If the disease is active—that is to say, if the system is being poisoned by an excessive amount of thyroid secretion—it will be found that the use of digitalis in full doses has no effect. When the active symptoms have subsided and the toxæmic condition has gone, the heart may have been damaged, as shown by the presence of auricular fibrillation or a rapid rate. At this stage digitalis may be given and, as a rule, with great benefit. In the case of other poisons, such as alcohol in excess, the same results will follow, and it is useless to give digitalis until all signs of active toxæmia have subsided.

It is now generally accepted that in acute pyrexial conditions digitalis does not slow the heart and that no benefit follows its use. It does not seem to matter whether the pyrexia is the result of some local inflammation or of some general infection. There are probably several reasons for this failure to obtain benefit from digitalis. The raised temperature of the blood may stimulate the *s.a.* node and lead to an increased rate, or the stimulation of the sympathetic nervous system may be so great as to overpower the vagus control. There are often toxic elements in the blood-stream which may directly stimulate the *s.a.* node to such an extent that nervous control is lost. Be the reason what it may, we have much evidence of this uselessness of digitalis during pyrexial conditions and we have no evidence to the contrary. It would appear that during pyrexial disease digitalis does exert

its influence on the vagus nerve, but that no effect is produced on the heart rate because a more powerful stimulant is at the time acting on the heart. I have evidence to show that if digitalis has been given in full doses during acute rheumatic disease with pyrexia, and *if the temperature falls*, we may get such a marked slowing of the pulse as to show clearly that the inhibitory action of the vagus had been brought into action. As unfortunately we are not able usually to fix definitely the duration of a pyrexial illness, we cannot employ digitalis with any confidence, although those who employ digitalis as a routine treatment in pneumonia have some support for their action. Even in a disease of fairly fixed duration like lobar pneumonia, I do not know of any series of cases showing definite evidence of benefit from digitalis. Repeated disappointments have led many to give up using digitalis in pneumonia.

If we contrast the two classes of cases, those in which digitalis may be expected to do good and those in which it may not, we shall find :—

1. That digitalis is serviceable when the disturbance in the heart rate arises in the cardiac tissues, and that it is not useful when the disturbance reaches the heart from without—i.e., through the blood-stream or the nervous system.

2. That the therapeutic benefits of digitalis are obtained when the later manifestations of heart disease have appeared and not in the acute inflammatory or actively toxæmic stages.

CLINICAL INDICATIONS FOR DIGITALIS.

What are the clinical indications for the use of digitalis ? Some are content to rely on an examination of the heart and pulse. There may be present some valvular murmurs, or alterations in the heart sounds, or changes in the size of the heart, but these are of no value in estimating the efficiency of the cardiac power. In the later stages of disease with which we are dealing such changes have probably existed for a long time. So that an examination of the heart can never by itself be made the basis of our treatment. A weak pulse will not decide the matter because no one ever felt a strong pulse when the heart was beating 140 times a minute. Every heart beat at that rate is weak and the pulse is correspondingly affected. The sphygmomanometer gives an appearance of scientific accuracy to a medical examination, but it is useless as a guide to the need for digitalis. In the typical case of auricular fibrillation there is no constant arterial pressure, for it becomes as irregular as the action of the ventricles. While we should carefully examine heart and pulse for comparison later on with the conditions after treatment, we must look elsewhere for the indications as to immediate treatment. Before treating the patient for cardiac failure we must have evidence that there is cardiac failure. Such evidence is to be obtained solely from the symptoms complained of by the patient and the signs in his tissues that the circulation is defective. In other words, a patient who requires digitalis has definite symptoms of which he is conscious and which are probably distressing him, and sooner or later he shows the presence of œdema in the lungs or extremities, engorgement of the liver, and congestion of the kidneys as manifested by a scanty amount of urine. The outstanding symptom is breathlessness, noticed at first on slight exertion, and increasing by degrees to breathlessness even at rest, and orthopnœa. When breathlessness is present, with or without some œdematous effusion, and when the heart on examination is found to be the organ at fault, and when the ventricular rate is rapid—that is the time to give digitalis. In suitable cases there is no haphazard action of digitalis. The doctor, however sceptical he may be about drugs, can see the good effect produced, and what is more, the patient, however sceptical he may be, is soon conscious of the relief which has followed.

DOSAGE AND ADMINISTRATION.

Digitalis is a powerful drug and may be dangerous if unskilfully used. Perhaps that is why text-books and pharmacopœias fail to indicate the full efficiency of digitalis by playing for safety with small doses. There is no doubt that the real merits of digitalis can only be learned by experience in dealing with many and different classes of cases. There are many points in common between digitalis and alcohol. Some call alcohol a tonic and others call it a poison. Both are right—it is a question of dosage. Some call digitalis a tonic, others call it a poisonous drug. Both are right—it is a question of dosage. Some give alcohol for its sedative qualities, others give it as a stimulant—and the same applies to digitalis. Both views are correct and both results can be obtained in suitable cases. The controversies over the use of alcohol are interminable, whereas as regards digitalis we have much more precise knowledge and much more agreement.

The first point to be remembered is that digitalis has to be given in such amount as to produce the required effect, which is slowing of the ventricular rate. This represents a considerable amount of digitalis, and there may follow certain toxic symptoms. Our aim and object is to produce the maximum therapeutic effect with the minimum toxic effect. Some are so anxious to avoid the latter that they never succeed in obtaining the former. The minor toxic effects do not harm the patient, and are really helpful often as an indication when to stop the drug. It is only when they are ignored and the drug is continued that the really serious toxic effects on the heart and other parts of the body will be produced. Speaking generally, we find that for an ordinary effective course of digitalis from 4 to 6 drachms of a standardised tincture of digitalis will be required. The amount usually ordered per diem is from 1 to 1½ drachms, according to the urgency of the patient's symptoms. When 3 drachms in all have been taken, the amount is fixed at 1 drachm per diem until the heart rate is slowed to 80 or until vomiting or headache or diarrhœa supervenes. Very often the two occurrences are simultaneous—that is to say, nausea comes on and the heart rate is found to be distinctly slowed. You will find that it is the cumulative effect of a considerable amount of digitalis given in a short space of time which tells on the vagus and slows the heart. If we give tincture of digitalis in 5 or 10 minim doses thrice daily we may in time give a much larger amount of digitalis without producing an effect on the heart or anything else, because the destruction or excretion of digitalis is so complete. In practice, therefore, it is now customary to give from 4 to 6 drachms of tincture of digitalis spread over from four to six days. More recently massive doses of the tincture have been tried, 3 to 4 drachms in 24 hours, and good results have been obtained more quickly than by the slower method. While this treatment by massive doses may be useful in urgent cases—that is to say, when the patient's distress is very great—it has this disadvantage, that some patients are intolerant of digitalis and develop toxic symptoms on small amounts. If such a patient is treated with massive doses, the toxic phenomena ensuing may seriously interfere with the prospect of recovery. For ordinary cases which appear to be suitable for digitalis therapy if 6 drachms have been given without producing nausea or slowing of the heart rate, it is advisable to stop the drug for 24 or 48 hours. If no change takes place during this time the drug may then be resumed for a few days in doses of 45 minims of the tincture daily. But given a standardised preparation of digitalis or of digitalin, one usually finds a definite result when the amount taken corresponds to 6 drachms of the tincture of digitalis. If we watch the patient as regards functional effects on the heart rate or the onset of nausea and vomiting, we are not likely to meet with any of the seriously toxic effects, such as prolonged vomiting and diarrhœa, or on the heart itself, coupled beats and heart-block. Finally, it may be noted that children benefit as much as adults from digitalis, but they require much larger doses in proportion to their size. A child of 10 or 12 years with a chronic rheumatic heart and rapid rate, and failure of the circulation, will take from 45 to 60 drops of tincture of digitalis daily, or its equivalent, with great benefit if administered under the precautions given above for adults.

NOTES ON THE EPIDEMIOLOGY OF MALARIA IN SOUTH-EAST RUSSIA.

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THE present widespread epidemic of malaria in South Russia is of deep interest both from a medical and a political point of view. Over enormous tracts of land, where subtertian malaria was unknown and tertian malaria rare, these diseases are now almost pandemic—up to 90 per cent of the population being affected in many areas. At the time of the famine in the Volga valley thousands of refugees travelled 1500 to 2000 miles to Turkestan where wheat was obtainable (November, 1921–March, 1922). On the return of these peasants after the harvest of 1922 malaria broke out in pandemic form throughout South-East Russia. The epidemic spread steadily throughout the winter, with the thermometer varying from 20° C. to 30° C. below zero from November until March.

Factors Favouring Spread of the Disease.

The spread of the disease during the extreme cold appeared to be due to the fact that the drinking-water butt, combined with the almost tropical heat of the log-houses of the peasants, offered an ideal breeding place for anopheles remaining in the huts from the summer. During the intense cold of winter both larvæ (in the water-butts) and adult anopheles (in dark corners) could be readily found in a large proportion of the peasants' houses adding to the large number of varied species of insects always existing in these places. A marked increase in the number of mosquitoes in a house occurs after a bundle of firewood has been brought in from the marshes. The firewood is covered deeply in snow; when brought into the log-huts it is dripping wet, and is stacked in a corner of the building, where it remains wet for some days owing to the high degree of water saturation of the air in the almost hermetically sealed houses. From the regularity with which an increase of mosquitoes is associated with the arrival of firewood in a house, and the excellent breeding conditions formed by the wet wood bundles in the hot houses, it appears possible that the eggs of certain mosquitoes laid in the cracks of the trees and dead wood in the late summer, and protected by the snow retain their vitality in spite of the intense cold (−30° C.). I have no evidence that this applies to anopheles.

Extent and Distribution of Epidemic.

The extent of the newly affected districts of Russia is limited by Nijni-Novgorod and Moscow in the north, by the western frontier of Russia in the west, and by the Black Sea in the south. This includes the whole of the Ukraine, Georgia, and the Caucasian provinces, the Black Sea provinces, and the whole of the south of the Volga valley. In the south-east the affected areas become continuous with the old endemic centres in Turkestan. The general incidence figures given by the Russian authorities are probably very inaccurate, as there exists little or no machinery for the collection of the crudest statistics. In practice, notification of births and deaths is only carried out in some of the larger towns and the notification of infectious and other diseases is not compulsory. The accuracy of statistics is further impaired by the very small percentage of the infected who see a doctor, owing to lack of transport (due to the death of almost all horses during the famine) and to the long distances (which are greatly increased by the small number of surviving doctors), added to the fact that the shortage of quinine and the large number of cases make it improbable that the patient will receive a dose of quinine after perhaps two or three days' journey. In this connexion it must be remembered that the great majority of the Russian population consists of country dwellers. There is no doubt, however, that a widespread epidemic of malaria exists in South Russia, with a very high rate of incidence amongst the population. The whole of the figures given below were obtained by English workers in the laboratories and clinics of the mission, and are largely based on 14,000 examinations in the unit's laboratory at Buzuluk during the six months, November, 1922–May, 1923.

The district in which I had an opportunity of noting some features of the epidemic was that of Buzuluk Ooyezd—a district approximately the size of Wales and with a mixed population of Tartars, Russians, Cossacks, and Khirghiz, totalling approximately 400,000. The population is widely scattered, the villages in some districts being 50 miles apart and 120 miles from the railway. The district includes forest (one-third), rivers, marshes, and steppeland, and has a maximum temperature of 102° F. in the summer and −30° C. in the winter. In this district the population was suffering from post-famine debility (one-half of the original population had died from famine and typhus fever), scorbutic diseases, nephritis, and dysentery; grass was still (in the winter, 1922–23) being mixed with rye-flour to make bread. Malaria first appeared in this district in October, 1922; and Chart 1 gives the number of persons applying for treatment in the Buzuluk town clinic (population 16,000 approx.) in the first six months. By March, 1923, between 60 per cent. and 70 per cent. of the whole population were suffering from the disease, the incidence being between 90 per cent. and 100 per cent. in most of the districts.

Types of Malaria Found.

Chart 2 shows the percentage of each type of malaria. It is to be noted that whilst subtertian malaria formed 35 per cent. of the total number of positives in November, 1922—i.e., immediately after the introduction of the disease to the district—both this type and quartan steadily fell until February, 1923, and have remained low (2 per cent. to 4 per cent.). Tertian malaria, on the other hand, has risen steadily in incidence, suggesting that this is the type that will remain permanently. This chart should be read in conjunction with Chart 1. Clinically, the cases presented all the characters of very severe malaria. During the winter, when the percentage of subtertian cases was at its height, there was a high mortality for which figures were unobtainable. It is interesting to note that of members of the unit, one who had been in perfect health throughout developed subtertian malaria three weeks after leaving Russia, the blood showing a heavy infection with small rings and crescents. This attack of malaria, which was due to a latent infection, was precipitated by an attack of relapsing fever and developed immediately after the latter.

Distribution of Quinine.

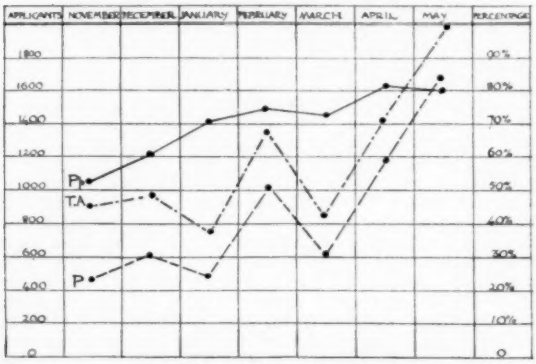
It was obvious that any efforts at hydro-technical control were useless in view of the enormous areas affected (all Southern Russia), the need of the water for irrigation, the indolent nature of the Russians, and the fact that most of the population were unfit to work. It was decided, therefore, to concentrate on a widespread distribution of quinine, this action being justified by the fact that the pandemic nature of the outbreak was largely due to the physical condition of the population—owing to the disease peasants could not plough, were unable to collect wood for warmth, to look after their animals, or even to carry the rations issued them by the relief unit. A prolonged quinine treatment enabled them to break the vicious circle of physical debility and malarial infection, and, moreover, reduced very considerably the number of human reservoirs of the disease.

The quinine was in the first instance issued to hospitals and practitioners. This proved unsatisfactory, as quinine became extremely valuable with the increase of the epidemic. In the case of practitioners the number of patients applying for treat-

ment was so great that uselessly small doses of quinine were given to each patient, which resulted only in temporary relief. In hospitals the quinine was sold by the attendants or the patient himself, the latter hiding quinine under the pillows of his bed and accumulating a considerable quantity, after which he

CHART 1

SHOWING TOTAL NUMBER OF APPLICANTS AND PERCENTAGE FOUND MICROSCOPICALLY POSITIVE DURING 6 MONTHS NOVEMBER 1922 TO MAY 1923



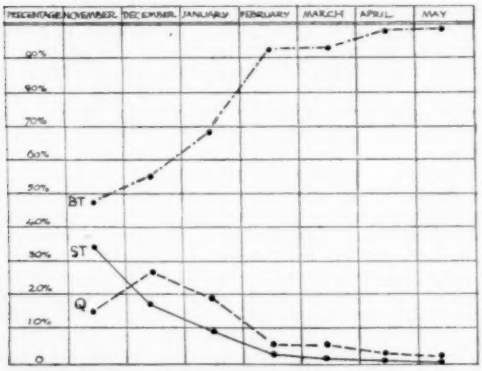
Pp, percentage of positives; TA, total applicants; P, positives.

discharged himself and sold the quinine in the bazaar at 1*s.* (1,000,000 roubles) for 5 gr. Much quinine was wasted by its issue to other cases than malaria by reason of the absence of laboratory control. A bacteriological laboratory was therefore ordered from England in 1922. A series of educated Russians—mostly university students—were trained by the permanent English worker in the diagnosis of malaria, the administration of a clinic, and the issuing of quinine, a course lasting three months. As each student qualified he was sent out into the district to open a clinic on the lines of that in which he had been himself trained.

The blood of every patient presenting himself at one of the clinics was examined microscopically, three examinations during fever being done before a

CHART 2

SHOWING RELATIVE INCIDENCE OF TYPES OF MALARIA DURING 6 MONTHS NOVEMBER 1922 TO MAY 1923



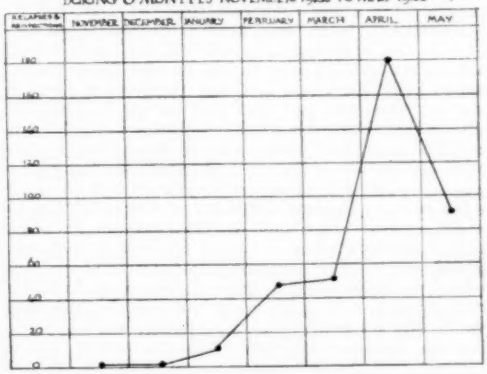
BT, benign tertian; ST, subtertian; Q, quartan.

case was declared negative. Positive cases were only treated upon a promise to continue to attend the clinic for two months in order to get a complete course. Few failed to keep the promise, as such cases were refused treatment at a later date should the disease recur. The fear of the disease was so deep, and the incapacity for agricultural work that it produced so great, that very few ran the risk of not being able to have treatment; practically, therefore, it was possible to obtain a satisfactorily long quinine treatment. A record card of each patient showed what attendances he had made and how many he had still to make. All quinine was actually swallowed at the clinic. The quinine given was a solution of the bisulphate in water and adults received 20 gr. as a single dose each day for a week and 15 gr. as a single dose twice a week for two months, the dose being varied proportionally for children. Though the patients varied from babies a few months old to old people no catastrophe or ill-effect has resulted from the large doses employed for ambulatory cases. The efficacy of this treatment is shown by the number of relapses (including reinfections) amongst patients (Chart 3).

The facts that the quinine issued from the unit clinics was the only quinine existing in the district, that it was consequently impossible for patients who relapsed to go elsewhere, and that each clinic dealt with a population isolated by distance, gives the relapse figure some value, in estimating the importance of the prolonged treatment. In March, amongst the 1500 cases treated, the number of old patients who had relapsed was 45. The increase to 180 in April is due to the re-infections during the thaw floods—the small number of re-infections being determined by the large proportion of the population undergoing the two months' treatment and having quinine in

CHART 3

SHOWING NUMBER OF RELAPSES INCLUDING RE-INFECTIONS DURING 6 MONTHS NOVEMBER 1922 TO MAY 1923



their blood. In a total of 5738 persons treated in the six months there were only 380 relapses and re-infections.

Probable Effect of the Epidemic upon South Russia.

The effect of the epidemic on the future of Russia will probably prove to be greater than that of the Revolution. From a healthy country inhabited by a virile, energetic peasant population, and entirely non-malarial throughout its greater extent, the whole of South Russia is now probably the most malarial country in the world. The hopelessness of eradicating the mosquito in view of the enormous areas concerned, combined with the easy-going nature of the Russian and the low standard of education of the majority, make it probable that a great degeneration, comparable with the effect of malaria on ancient Greece, will in the next 20 years alter the type of the whole population of these Cossack districts and will threaten to overwhelm the rest of Russia. Had it been possible, as it was practicable, to quarantine all refugees arriving from Turkestan (as was done with cases of suspected cholera and typhus), the infection of the mosquito could have been prevented to a large extent, but it was impossible to persuade the authorities to allow the formation of a quarantine camp, where refugees could have been treated with quinine if found to be suffering from malaria on arrival.

The chief points of interest in the epidemic as I saw it may be enumerated as follows: 1. The rapid spread of the epidemic in the extremely cold winter months in Russia. 2. The mode of spread through the means of the infected water-butts of the peasants'

houses. 3. The fact that subtertian malaria reached its maximum in November, December, and January and afterwards almost disappeared. 4. The monthly alteration in the quartan incidence (Chart 2). 5. The extreme susceptibility of a population weakened by famine and disease. 6. The practical difficulties met with in the uncontrolled quinine distribution in a malarial country and the need for constant laboratory control. 7. The small number of relapses (including re-infections) after prolonged quinine treatment. 8. The necessity for seeing the quinine actually swallowed at the clinics. 9. The absence of risk in the routine high dosage of quinine in ambulatory cases. 10. The pandemic nature of the outbreak. An average for all our districts showed between 60 per cent. and 70 per cent. of the population to be infected and in most of the districts 90 per cent. and 100 per cent. The malarial cases showed an average of 57 per cent. of all out-patient cases at hospitals.

RHEUMATIC CARDITIS:

SOME PRINCIPLES GOVERNING ITS PREVENTION AND EARLY TREATMENT.

BY MARTIN O. RAVEN, M.D. OXF.,
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ALTHOUGH the general public has to a large extent learnt to appreciate the modern clinical conception of infective disease, and has in consequence been roused to considerable efforts in combating tuberculosis and venereal disease, it is nevertheless not much better informed with regard to acute rheumatism than it was 100 years ago. The idea of a "rheum," causing a painful lodgment in the various parts of the body where it came to rest, is practically identical with the modern lay conception of constitutional rheumatism, and though it is nearly 100 years since Scudamore and Bouillard associated cardiac lesions with rheumatism, even a well-educated man of to-day, unless he has had personal experience of the disease, is usually unaware of that association.

Yet to the medical man the disease is daily manifest in patients of all ages. Osler alludes to the "long arm" of rheumatism, in ascribing to it a large proportion of the 50,000 annual deaths from heart disease in this country; and recent figures are still more emphatic. Langmead[1] states that in the London County Council schools there is actually more rheumatism than tuberculosis, and that in the special schools for physically defective children one-third of the cases are cardiac. In 1920 the statistics of the Invalid Children's Aid Association show that they had 996 cases of rheumatism, heart disease, and chorea in their charge, as compared with 1401 cases of all varieties of tuberculosis.

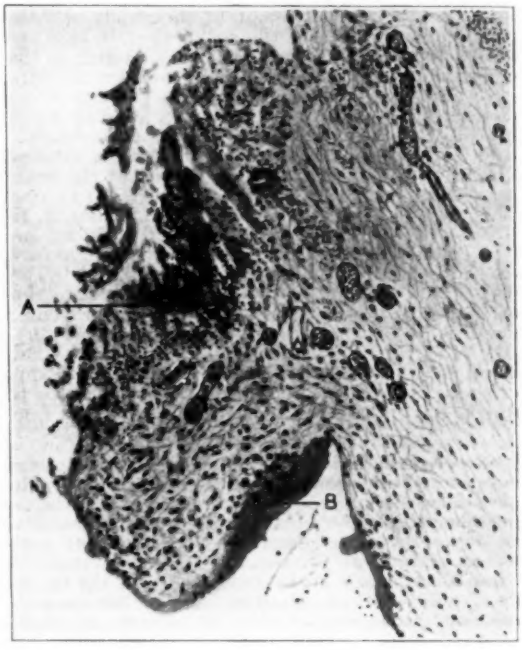
Literature of the Subject.

During the last century the teaching by Botrel that all chorea was of rheumatic origin, and the description of the rheumatic nodule by Hillier, were followed by Cheadle's conception of the "rheumatic state" in childhood and early adult life as an infective disease[2]—a conception which still holds the field. This conception was from the first strongly supported by the anti-rheumatic effects of sodium salicylate, and adequate doses of the drug at frequent intervals, in children as well as in adults, were insisted upon by Dr. David Lees[3] in his works upon rheumatic carditis. The work done under the stimulus of the chemical theory of the disease—which led Richardson to suppose that lactic acid, and Latham and Haig to suppose that uric acid, was the cause of rheumatic fever—needs only to be mentioned to show how completely such theories are rejected by the clinical thought of to-day, under the influence of the results of bacterial research.

But in spite of the discovery of numerous bacteria in immediate association with other clinical syndromes and lesions, those of acute rheumatism remain unassociated with any established causative organism. In 1900 and 1901, Poynton and Paine[4] claimed that they had demonstrated a diplococcus in 11 cases of acute rheumatism; this organism was found in the blood, pericardial fluid, granulations from the heart valves, nodules, heart wall, and throats of their subjects; inoculation of the organism into rabbits was found to produce arthritis, synovitis, early valvular murmurs, chorea, valvulitis, and pericarditis, and it was claimed to be the cause, not of all rheumatism, but "of all cases conforming to the usual type of the disease." These researches, though they still find considerable support—noticeably that of Beattie and Dixon[5]—have not been so fully confirmed that they command general acceptance. Horder[6] has remarked a general agreement that the vegetations of rheumatic endocarditis were, as judged by the present methods, bacteria-free, as also was the patient's blood-stream.

Rheumatic and Bacterial Lesions Contrasted.

Microscopic sections of the heart valve and musculature, of which the accompanying illustration is



Section of mitral valve of a patient who died from secondary (staphylococcal) endocarditis. There was a long history of rheumatic heart disease. A, Area of intense hyperæmia and polymorphonuclear cell-exudation, the site of old rheumatic endocarditis. B, Area of rheumatic endocarditis, showing fibrinous deposit and fibroblastic proliferation beneath the endothelium. (From a drawing made by Dr. Joan Ross.)

an example, taken from a case of infective (staphylococcal) endocarditis superimposed on a rheumatic history, illustrate the histological contrast between the rheumatic and the bacterial lesions, both types lying side by side in the same valve and in the muscle. The rheumatic lesions show lightly-stained fibrinous deposit and fibroblastic proliferation (Aschoff's nodes in the muscle); the infective endocardial lesion and a pyæmic abscess in the muscle show intense polymorphonuclear invasions of the areas.[7]

However obvious, therefore, it is that acute rheumatism is infective in its origin, there is as yet no full warrant for saying that the infection is bacterial, and it is certainly remarkable, in contrast to many diseases with definite morbid lesions, that if there is a bacterium present in the very specific lesions of rheumatic disease, its identity has not been revealed by this time. Alternatives to a bacterial infection

seem to be: (1) an exotoxin secreted by a bacterium lying elsewhere than in the specific lesions; (2) a filtrable virus. All these possibilities require further investigation; it is conceivable that there may be symbiosis in infection—e.g., that a streptococcus may be in close association with a filtrable virus.

General Position of the Disease To-day.

The existing uncertainty as to the cause of rheumatic diseases is undoubtedly an important factor underlying the very unsatisfactory state of affairs prevailing in the management of the disease to-day. One has only to imagine the discovery and bacteriology of a causative organism to be established to visualise the impetus which would be given to prevention, to diagnosis, to properly controlled treatment, and to the education of the public in the disease. There is no doubt that the established bacteriology of *B. tuberculosis* has been a great stimulus to the hygienic and clinical management of tuberculosis; the occurrence of the bacillus in milk and in sputum has had far-reaching effects in diagnosis and in the establishment of preventive measures; similarly the finding of the organism in the tonsils and decaying teeth of children has emphasised the desirability of tonsillectomy and of dental repair in thousands of cases of tuberculous adenitis of the neck. Yet, though there is no bacteriology in rheumatic corresponding to that in tuberculous disease, a great many facts are nevertheless so well established clinically as to justify systematic attempts to control this disease, similar to those already being made in the case of tuberculosis. In 1900 Caton [8] published a series of 86 cases illustrating the preventability of valvular disease of the heart by treatment of rheumatic endocarditis. In America the Society for the Prevention and Relief of Heart Disease has assumed an influential position, and in this country in 1923 Dr. Poynton [9] has brought forward considerable proposals, in which education of the public takes a prominent place, for the early detection of rheumatic symptoms and the consequent prevention of carditis. Finally, during a discussion opened by Dr. R. Miller at Portsmouth, the Council of the British Medical Association has been recommended to appoint a special committee to consider the best steps to be taken to combat the disease.[10]

Is Rheumatic Disease Infectious?

Newsholme,[11] in 1895, spoke of rheumatism as an acute infectious disease, having an epidemic prevalence in irregular periodicity. It may be asked whether it can be regarded as an infectious disease to-day. It is now generally admitted that phthisis is an infectious disease. W. St. Lawrence,[12] in New York, made an investigation into the incidence in families of rheumatism and tuberculosis. In 100 families, in each of which at least one member had suffered from a manifestation of acute rheumatism, he found the percentage of cases of actual rheumatism among all the exposed persons to be 14·8; a similar investigation in respect of tuberculous families, in each of which at least one member had active tuberculosis, revealed the percentage of actual cases among persons exposed to be 14·6, and he points out that "it is difficult to evade the proposition that rheumatic disease, and therefore cardiac disease, is communicable to a degree not generally imagined."

A London boy suffering from hitherto unrecognised and advanced heart disease was recently introduced into a seaside ward containing many rheumatic cardiac cases. He developed tonsillitis on the day of his admission, but by a mistake was not isolated for over 24 hours; a nurse shortly afterwards contracted tonsillitis, and for some time afterwards there were continual and irregular attacks of pyrexia and tonsillitis among the children in the ward. During this period one child with a rheumatic history contracted early mitral disease for the first time, after having tonsillitis; one case of severe adherent pericardium suffered from a severe recrudescence of the disease, and in two cases of old mitral disease relapse occurred, as indicated by recurrence of anæmia, tachycardia, and dilatation of the heart, and a return and intensification of murmurs which had been quite or nearly abolished—in one case by a long term of rest and treatment.

There is some evidence, therefore, that on grounds of public health alone the isolation of a child suffering from symptoms of rheumatic disease may be as desirable as that of a person suffering from phthisis.

Prophylaxis of Heart Disease in Rheumatic Cases.

Prophylaxis in the individual child may next be considered. W. St. Lawrence [13] made observations in 65 children who had had manifestations of rheumatic disease elsewhere than in the heart. These cases of "potential cardiac disease," as he has called them, were kept under observation and management for 4½ years; by the end of that time 25 per cent. of them had developed cardiac lesions of some sort; the remaining figure of 75 per cent. he regards as certain to fall, many of the children having had constant severe recurrence of rheumatic fever or chorea, and "such persons rarely failing to contract eventually a lesion in the heart"; he concludes that only when a child has remained free from recurrence of rheumatic manifestations for three years may recovery be regarded as fairly safe.

Further, of the 25 per cent. that developed heart lesions every one had had chorea, whereas of 100 children with cardiac lesions, who had not been under treatment, less than a quarter had had chorea at any time. St. Lawrence regards tonsillectomy as a most important factor in the management of these cases, and hence he concludes that this operation is highly effective in preventing recurrence in cases of acute rheumatism or rheumatic pains, but much less effective in preventing the recurrence of chorea. He draws a superficial analogy between active syphilis and parasyphilis on the one hand and rheumatic fever and chorea on the other, pointing out that the diseases in each case are much less amenable to treatment when the nervous system is implicated.

During the past year eight children who received during the summer of 1922 from 6 to 12 weeks' quiet life by the seaside have been observed. The hearts were all normal on their arrival at and departure from the seaside. They had all originally had chorea; in no case was tonsillectomy performed. They were re-examined after at least six months' life in London and daily school attendance, the results being as follows:—

3 cases	Heart normal; no more chorea.
1 case	Heart normal, but chorea recurred.
3 cases	Signs of myocarditis (excitable beat and dilatation); fresh chorea.
1 case	Aortic regurgitation.

Out of eight cases, therefore, who had had a short stay on the sea-coast, five showed recurrence of rheumatic symptoms.

Prevention of Relapse in Cases of Established Heart Disease.

Coming, thirdly, to the case of the child who has developed some degree of rheumatic cardiac disease, the time-element involved in the question of recovery is still more formidable. It has to be asked at the end of what length of time is a heart, which has once been infected, to be considered free from infection. In the absence of any kind of laboratory help, the answer is bound to be most uncertain, and even if a heart valve be freed from actual infection, it appears to become reinfected with disastrous ease in unfavourable cases. Cowan and Rennie [14] found that of 62 cases dying from chronic valvular disease at all times of life, no less than 39 showed acute endocarditis to be present at death—due, they consider, to reinfection of the valves previously injured by rheumatic endocarditis, while Poynton,[15] in recording a series of cases which seem to link up "simple" and "malignant" forms of endocarditis, suggests that such cases are those, not of superadded infection on a previously damaged valve, but in which organisms which have remained dormant in the tissues of the valve for years, have been reawakened to activity.

Children dying from heart disease may be said never to die from any merely mechanical defects

inherent in the damaged valves; the cause of death is the toxic action of the rheumatic poison upon the essential part of the heart—the myocardium; and the observations of Cowan and Rennie make it appear likely that the same kind of toxic agent may often be present in cases dying from chronic valvular disease, leading to a poisoning of the already damaged myocardium. This hypothesis would account for the comparatively acute onset of symptoms leading to fatal heart failure, occurring in individuals who have for some years been known to suffer from valvular lesions without grave embarrassment, and a successful combating of the endocarditis would account for occasional recoveries in cases of heart failure where the outlook had seemed almost hopeless. In cases approximating to the "malignant" type, secondary organisms are perhaps deposited on the damaged valves or are brought by blood-vessels to the vascularised valves; but it is also to be regarded as possible that an infection having once occurred in a valve may be latent for years and then flare up again under suitable circumstances.

Thus there is at present no answer forthcoming to the question of the duration of valvular infection. But here again, in the absence of obvious constitutional signs of active disease—e.g., pyrexia and increasing pallor—clinical observation furnishes a principle of practical assistance. Just as an abnormal condition of the heart is indicated by abnormal physical signs, so where there is an observed change in the physical signs in progress, it is fair to assume that the lesion in the heart is itself undergoing change, and while such changes are in progress it is clear that the stage of activity of the disease has not been fully completed. And until that active stage is closed the heart should be given as much complete rest as possible, in the same way that a tuberculous hip is rested completely until all active signs of the disease have ceased.

Such a principle undoubtedly involves a long time element in the course of its effecting a recovery, for, as will be shown later, some of the changes in the physical signs take place very slowly. Moreover, when the cardiac condition has settled down to what seems a constant state, any increased amount of work put upon the heart must be very gradual, and, even when the patient is up and about, the question of possible relapse, from which even "potential" heart cases suffer so often, has to be considered. Such treatment should be undertaken under every kind of favourable circumstances possible; of these, fresh air, adequate warmth, good food, and a discriminating nursing supervision in order to ensure adequate physical and emotional restraint are the most important. The test of the efficiency of the treatment will be in the results as compared with the results of the usual forms of treatment available.

Results of Infection of the Heart.

In tabulating the results of infection of the heart the main difficulty lies in the very varying incidence of the infection upon the tissues of the heart. The myocardium, pericardium, and endocardium may be simultaneously or separately affected, and the endocardium may present single or multiple lesions. In the great majority of children suffering from chronic carditis there is a history of repeated attacks of chorea, rheumatism, or "growing pains," which clearly show that there is no system existing at present which is capable of preventing these recurring attacks. The usual history is that the children have gone into and out of hospitals several times, after which they are found to have a "weak heart." The special schools provided for such children by the London County Council constitute the best possible method of controlling these children's condition under the existing circumstances. Fresh air is abundant, medical supervision is regular, the children have a great deal of rest and are brought from and returned to their homes daily in special carriages.

Among 48 such children with a history of chronic rheumatic heart disease examined, the average time elapsed since the original infection was four years, the actual times varying from one to 11 years and under such circumstances the conditions of their hearts were found to be as follows:—

1.	Normal hearts	5 cases.
2.	Moderate muscular hypertrophy with systolic murmur	12 ,,
3.	Marked muscular hypertrophy with tumultuous heart-beat and rib-retraction	6 ,,
4.	Mitral obstruction (i.e., diastolic apical bruit)	12 ,,
5.	Mitral stenosis	7 ,,
6.	Aortic regurgitation	6 ,,

These cases may be conveniently considered in three groups, according to whether the chief stress of the infection seems to have fallen upon the muscle, the mitral valve, or the aortic valve.

1. *Myocarditis.*—Myocarditis occurs in every case of rheumatic heart disease and is followed by some degree of cardiac dilatation and excitability of the heart beat. The nodes of Aschoff are so small as not probably to interfere with the conductivity of the muscle bundles of the heart, unless the condition becomes grossly aggravated by continually recurring infection. Slight dilatation of the heart is often accompanied by a soft systolic murmur, which is not necessarily endocardial in origin; in many cases under observation while recumbent, these systolic murmurs have been found to disappear completely. The cardiac dullness is estimated by palpation and percussion—especially by light percussion, as recommended by Dr. D. Lees.[3] The apex beat indicates the position of the lowest point of the left ventricle, and unless the chest is malformed—e.g., from rickety changes—is usually felt in the fifth left intercostal space, and the left border of the heart curves gradually inwards and upwards from this position. The right ventricle can sometimes be palpated through the epigastrium and diaphragm, but a definite enlargement of it can only be estimated when there is also hypertrophic change. The position of the border of the right auricle is of the greatest importance, for the auricles are more easily dilated than the ventricles, since their walls are thin.

General muscular hypertrophy of the heart, associated with a heaving and sometimes tumultuous beat is not necessarily associated with any valvular lesion. Possibly it may result from repeated attacks of myocarditis; much more probably it is the outcome of chronic adhesive pericarditis. In marked cases retraction of the ribs and intercostal spaces synchronous with the apex beat is a frequent feature, and indicates extensive bands of adhesion in the pericardium and anterior mediastinum. In some of these cases the hypertrophy seems to displace the apex beat markedly outwards and not at all downwards, as if the adherent bands opposed the cardiac enlargement taking place in the usual downward direction; the apex beat is then felt far out in the fifth space. But commonly, also, the shock of the systolic impulse imparted to the parietes makes any palpation, even of the apex beat, very difficult; a determination of the position of maximum audibility of the first sound is then a valuable help in determining the position of the apex beat. In the absence, however, of such confirmatory signs, and of a history of pericardial friction sounds or fluid, the existence of chronic adhesive pericarditis in a small degree can only be surmised in cases of moderate general muscular hypertrophy.

Whether there is any residual active myocarditis in a given case can only be determined apart from constitutional signs, by the principle indicated above—i.e., that where the abnormal cardiac signs are still changing, the stage of infective activity and tissue-response to infection cannot be said to have closed. Under such conditions the heart requires further observation at rest. Signs of favourable changes are: (*a*) Diminishing rapidity and excitability of the heart beat; (*b*) Diminishing cardiac dullness; (*c*) disappearance of the systolic murmur. Considerable time, moreover, may be needed before these changes are completed. In one case under observation it was five months before an excitable and rapidly beating heart settled down to a constant and deliberate

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Prophylaxis in the individual child may next be considered. W. St. Lawrence [13] made observations in 65 children who had had manifestations of rheumatic disease elsewhere than in the heart. These cases of "potential cardiac disease," as he has called them, were kept under observation and management for 4½ years; by the end of that time 25 per cent. of them had developed cardiac lesions of some sort; the remaining figure of 75 per cent. he regards as certain to fall, many of the children having had constant severe recurrence of rheumatic fever or chorea, and "such persons rarely failing to contract eventually a lesion in the heart"; he concludes that only when a child has remained free from recurrence of rheumatic manifestations for three years may recovery be regarded as fairly safe.

Further, of the 25 per cent. that developed heart lesions every one had had chorea, whereas of 100 children with cardiac lesions, who had not been under treatment, less than a quarter had had chorea at any time. St. Lawrence regards tonsillectomy as a most important factor in the management of these cases, and hence he concludes that this operation is highly effective in preventing recurrence in cases of acute rheumatism or rheumatic pains, but much less effective in preventing the recurrence of chorea. He draws a superficial analogy between active syphilis and parasyphilis on the one hand and rheumatic fever and chorea on the other, pointing out that the diseases in each case are much less amenable to treatment when the nervous system is implicated.

During the past year eight children who received during the summer of 1922 from 6 to 12 weeks' quiet life by the seaside have been observed. The hearts were all normal on their arrival at and departure from the seaside. They had all originally had chorea; in no case was tonsillectomy performed. They were re-examined after at least six months' life in London and daily school attendance, the results being as follows:—

3 cases	Heart normal; no more chorea.
1 case	Heart normal, but chorea recurred.
3 cases	Signs of myocarditis (excitable beat and dilatation); fresh chorea.
1 case	Aortic regurgitation.

Out of eight cases, therefore, who had had a short stay on the sea-coast, five showed recurrence of rheumatic symptoms.

Prevention of Relapse in Cases of Established Heart Disease.

Coming, thirdly, to the case of the child who has developed some degree of rheumatic cardiac disease, the time-element involved in the question of recovery is still more formidable. It has to be asked at the end of what length of time is a heart, which has once been infected, to be considered free from infection. In the absence of any kind of laboratory help, the answer is bound to be most uncertain, and even if a heart valve be freed from actual infection, it appears to become reinfected with disastrous ease in unfavourable cases. Cowan and Rennie [14] found that of 62 cases dying from chronic valvular disease at all times of life, no less than 39 showed acute endocarditis to be present at death—due, they consider, to reinfection of the valves previously injured by rheumatic endocarditis, while Poynton,[15] in recording a series of cases which seem to link up "simple" and "malignant" forms of endocarditis, suggests that such cases are those, not of superadded infection on a previously damaged valve, but in which organisms which have remained dormant in the tissues of the valve for years, have been reawakened to activity.

Children dying from heart disease may be said never to die from any merely mechanical defects

inherent in the damaged valves; the cause of death is the toxic action of the rheumatic poison upon the essential part of the heart—the myocardium; and the observations of Cowan and Rennie make it appear likely that the same kind of toxic agent may often be present in cases dying from chronic valvular disease, leading to a poisoning of the already damaged myocardium. This hypothesis would account for the comparatively acute onset of symptoms leading to fatal heart failure, occurring in individuals who have for some years been known to suffer from valvular lesions without grave embarrassment, and a successful combating of the endocarditis would account for occasional recoveries in cases of heart failure where the outlook had seemed almost hopeless. In cases approximating to the "malignant" type, secondary organisms are perhaps deposited on the damaged valves or are brought by blood-vessels to the vascularised valves; but it is also to be regarded as possible that an infection having once occurred in a valve may be latent for years and then flare up again under suitable circumstances.

Thus there is at present no answer forthcoming to the question of the duration of valvular infection. But here again, in the absence of obvious constitutional signs of active disease—e.g., pyrexia and increasing pallor—clinical observation furnishes a principle of practical assistance. Just as an abnormal condition of the heart is indicated by abnormal physical signs, so where there is an observed change in the physical signs in progress, it is fair to assume that the lesion in the heart is itself undergoing change, and while such changes are in progress it is clear that the stage of activity of the disease has not been fully completed. And until that active stage is closed the heart should be given as much complete rest as possible, in the same way that a tuberculous hip is rested completely until all active signs of the disease have ceased.

Such a principle undoubtedly involves a long time element in the course of its effecting a recovery, for, as will be shown later, some of the changes in the physical signs take place very slowly. Moreover, when the cardiac condition has settled down to what seems a constant state, any increased amount of work put upon the heart must be very gradual, and, even when the patient is up and about, the question of possible relapse, from which even "potential" heart cases suffer so often, has to be considered. Such treatment should be undertaken under every kind of favourable circumstances possible; of these, fresh air, adequate warmth, good food, and a discriminating nursing supervision in order to ensure adequate physical and emotional restraint are the most important. The test of the efficiency of the treatment will be in the results as compared with the results of the usual forms of treatment available.

Results of Infection of the Heart.

In tabulating the results of infection of the heart the main difficulty lies in the very varying incidence of the infection upon the tissues of the heart. The myocardium, pericardium, and endocardium may be simultaneously or separately affected, and the endocardium may present single or multiple lesions. In the great majority of children suffering from chronic carditis there is a history of repeated attacks of chorea, rheumatism, or "growing pains," which clearly show that there is no system existing at present which is capable of preventing these recurring attacks. The usual history is that the children have gone into and out of hospitals several times, after which they are found to have a "weak heart." The special schools provided for such children by the London County Council constitute the best possible method of controlling these children's condition under the existing circumstances. Fresh air is abundant, medical supervision is regular, the children have a great deal of rest and are brought from and returned to their homes daily in special carriages.

Among 48 such children with a history of chronic rheumatic heart disease examined, the average time elapsed since the original infection was four years, the actual times varying from one to 11 years and under such circumstances the conditions of their hearts were found to be as follows:—

1.	Normal hearts	5 cases.
2.	Moderate muscular hypertrophy with systolic murmur	12 ,,
3.	Marked muscular hypertrophy with tumultuous heart-beat and rib-retraction	6 ,,
4.	Mitral obstruction (i.e., diastolic apical bruit)	12 ,,
5.	Mitral stenosis	7 ,,
6.	Aortic regurgitation	6 ,,

These cases may be conveniently considered in three groups, according to whether the chief stress of the infection seems to have fallen upon the muscle, the mitral valve, or the aortic valve.

1. *Myocarditis.*—Myocarditis occurs in every case of rheumatic heart disease and is followed by some degree of cardiac dilatation and excitability of the heart beat. The nodes of Aschoff are so small as not probably to interfere with the conductivity of the muscle bundles of the heart, unless the condition becomes grossly aggravated by continually recurring infection. Slight dilatation of the heart is often accompanied by a soft systolic murmur, which is not necessarily endocardial in origin; in many cases under observation while recumbent, these systolic murmurs have been found to disappear completely. The cardiac dullness is estimated by palpation and percussion—especially by light percussion, as recommended by Dr. D. Lees.[3] The apex beat indicates the position of the lowest point of the left ventricle, and unless the chest is malformed—e.g., from rickety changes—is usually felt in the fifth left intercostal space, and the left border of the heart curves gradually inwards and upwards from this position. The right ventricle can sometimes be palpated through the epigastrium and diaphragm, but a definite enlargement of it can only be estimated when there is also hypertrophic change. The position of the border of the right auricle is of the greatest importance, for the auricles are more easily dilated than the ventricles, since their walls are thin.

General muscular hypertrophy of the heart, associated with a heaving and sometimes tumultuous beat is not necessarily associated with any valvular lesion. Possibly it may result from repeated attacks of myocarditis; much more probably it is the outcome of chronic adhesive pericarditis. In marked cases retraction of the ribs and intercostal spaces synchronous with the apex beat is a frequent feature, and indicates extensive bands of adhesion in the pericardium and anterior mediastinum. In some of these cases the hypertrophy seems to displace the apex beat markedly outwards and not at all downwards, as if the adherent bands opposed the cardiac enlargement taking place in the usual downward direction; the apex beat is then felt far out in the fifth space. But commonly, also, the shock of the systolic impulse imparted to the parietes makes any palpation, even of the apex beat, very difficult; a determination of the position of maximum audibility of the first sound is then a valuable help in determining the position of the apex beat. In the absence, however, of such confirmatory signs, and of a history of pericardial friction sounds or fluid, the existence of chronic adhesive pericarditis in a small degree can only be surmised in cases of moderate general muscular hypertrophy.

Whether there is any residual active myocarditis in a given case can only be determined apart from constitutional signs, by the principle indicated above—i.e., that where the abnormal cardiac signs are still changing, the stage of infective activity and tissue-response to infection cannot be said to have closed. Under such conditions the heart requires further observation at rest. Signs of favourable changes are: (*a*) Diminishing rapidity and excitability of the heart beat; (*b*) Diminishing cardiac dullness; (*c*) disappearance of the systolic murmur. Considerable time, moreover, may be needed before these changes are completed. In one case under observation it was five months before an excitable and rapidly beating heart settled down to a constant and deliberate

rhythm; during this time the cardiac dullness diminished, and when the child was re-examined a year later, after seven months' living at home in London, the heart appeared normal in every respect. When, however, there is no longer any indication of change in the physical signs, it will probably be safe to allow the child to begin to get up. There is no point in keeping a child in bed because the heart is abnormal merely, but only when the abnormal condition is changing. Nevertheless, the process of getting up and about must be very gently graduated; at first the child should only be allowed to sit up for a quarter of an hour in the day, and the amount of activity is then gradually increased, careful watch being kept for any unfavourable reactions in the physical signs. As a result of rest and gradually promoted convalescence in seaside air for periods varying from four to eight months, seven cases, on re-examination after at least seven months' life in London, show the following results:—

No relapse; normal hearts	5 cases.
Relapse; fresh myocarditis	1 case.
Relapse; aortic regurgitation	1 ,,

2. *Mitral Disease.*—This is, of course, extremely common; 19 out of the 48 cases of chronic carditis had signs of it, while among the more recent cases under treatment at the seaside, 23 out of 44 rheumatic children, whether cardiac or not, showed definite signs of mitral disease. The significance of a systolic bruit is not easy to determine; musical and harsh murmurs are probably endocardial in origin, but apart from two of these in the first or chronic series, systolic bruits have not been considered as evidence of mitral disease.

Where the mitral valve is affected it is much easier than in simple myocarditis to appreciate the presence of a changing process in the lesion, owing to the characteristic nature of the auscultatory sounds. The most important and helpful murmur in mitral disease of rheumatic origin is a diastolic bruit, best heard just internal to the apex of the heart, and often only heard there. This murmur may occur at any time in diastole—just after the second sound, in mid-diastole, or as a presystolic murmur; the significant point about it is that it may disappear altogether if sufficient rest be allowed to the heart; on the other hand, it may persist indefinitely in severe cases—it was present in 10 of the 48 chronic cases examined—or, under more unfavourable conditions, may become converted into the crescendo presystolic murmur of mitral stenosis. Here it may be said that not every presystolic murmur, of course, is indicative of mitral stenosis, using that term in the sense of a cicatricial narrowing of the orifice. The presystolic thrill and murmur of mitral stenosis are always accompanied by a marked hypertrophy of the right ventricle, which can be felt during systole through the epigastrium and diaphragm as a large and hard mass, giving rise to a marked epigastric pulsation. This presystolic murmur is also a permanent murmur, but the presystolic murmur of more recent endocarditis, though it may be accompanied by a thrill, gives way early, under conditions of complete rest, to a mid-diastolic bruit, at which stage the condition may become stationary for a time—or even permanently. But this bruit also tends to change: it then appears earlier in diastole, and is heard just internal to the apex beat as a reduplicated second sound. With still further rest, the reduplication also may disappear and continue absent on the child's being allowed later gradually to get up. The bruit may be called one of mitral obstruction, as opposed to stenosis, and is probably caused by the presence of an active, quiescent, or healed vegetation on the mitral valve, or, as recently suggested by Sir Thomas Horder, to a progressive sclerosing endocarditis from infiltration of the valve-cusps [16]; in any case it is never accompanied by a hypertrophy of the right ventricle, such as occurs in stenosis.

It is most important that this bruit of mitral obstruction be not allowed to grow more marked or even to continue if possible; it is usually accompanied in recent cases by great excitability of the pulse and by cardiac dilatation from myocarditis, so that the indications for rest are two-fold. Without adequate rest, if there is any activity in the cusps of the mitral valve, their tendency will be to become further inflamed—a condition of extreme gravity, for though the myocardium is the essential part of the heart, it is the endocardium which in rheumatic carditis is the most dangerous source of recurring toxicity—largely owing to its direct communication with the blood-stream; at best, under such conditions the cusps will tend ultimately to give rise, by coalescence of their adjoining edges, to the serious clinical condition of mitral stenosis.

The morbid anatomy of endocarditis shows that in severe cases which come to post-mortem examination a greater or less degree of fibrinous deposit is found on the valves; this is followed by œdema, thickening, and deformity; vascularisation also is a frequent occurrence. It is easy to see, then, how mitral stenosis becomes established as a progressive lesion. But while the endocardial changes are as yet presumably slight, there is no reason why, given sufficiently favourable conditions, the lesion should not be cleared up with a minimum of damage, vascularisation, and cicatrix, somewhat as a corneal ulcer clears up. But any analogy to the non-vascular cornea seems to break down in the light of the work done by L. Gross [17] on the blood-supply to the heart valves and its relation to inflammation of the valves. Gross finds that all fœtal valves contain a musculature and vasculature, the natural tendency of which is to regress as age advances; vessels in normal adult valves are hardly ever demonstrable, but the valves of children contain both muscle and vessels. Moreover, all cases of valvular endocarditis show a vasculature in the valves, and in adults the most frequent site of endocarditis is the aortic cusp of the mitral valves, which is the last leaflet to lose its musculature. Thus it seems that in the child, as contrasted with the adult, the tendency to endocarditis is associated with the presence of the remains of the fœtal vasculature, and it is further inherently probable that where there has been inflammation, the regression of the vasculature will be retarded; finally, if there is established a chronic inflammatory condition of the valve, the vascularisation of the valve will tend to become permanent—a condition of affairs which stands in close relation to severe endocarditis occurring later in life.

In any case, effort must be directed to enable the valve to return as nearly as it can to its original condition. And while the physical signs are receding, it is fair to suppose that the lesions are tending to clear up. But it may take as long as six months before a diastolic bruit of mitral obstruction clears up. This happened in one case under observation in 1922, and when this child was re-examined after seven months of life in London, attending an ordinary school, the heart was practically normal, only a very slight degree of residual enlargement of the heart showing that there had ever been any trouble; the auscultatory signs were quite normal. Altogether four such cases were discharged from the seaside after rest in bed for from five to eight months, followed by gradual resumption of activity; on re-examination, after seven months' life in London, two of the children showed approximately normal hearts; one other was normal after continuing to reside at the seaside for two years. The fourth case has still an unchanged systolic murmur, but there has been no relapse and no return of any diastolic bruit. All four of them had had diastolic bruits associated with excitable pulses and cardiac dilatation; they were none of them allowed to get up until some time after the diastolic bruits had completely disappeared (see Cases 19, 22, 23, and 29).

It should be mentioned that three of these four cases had had chorea, and that only one of them has relapsed and been in hospital again—for this symptom only; but this child was only kept there for a fortnight, the functional element being considered predominant; it was interesting to notice that, while at the seaside, this

child had a temporary return of all her choreic symptoms, which had been absent for some months, on being visited by a very anxious mother.

It is not, of course, suggested that the above cases are in any way cured; on the contrary, they are all in need of the most regular after-care and observation to forestall relapse; a restful summer country holiday is advised as an important feature of such after-treatment. It is thought, however, that in each case, just as in the myocardial cases a progressive cardiac lesion has, for a time at least, been arrested. Two other children with this mitral bruit who were withdrawn from treatment at the end of three months have both relapsed and had to go to hospital again; the murmur is still persisting in several cases of more severe and complicated heart disease under more prolonged treatment, and it was present in the case of two children that died. Two cases are still under observation, in which a presystolic murmur of mitral obstruction has disappeared in one case and given way in another to a mid-diastolic bruit. One of these two cases has just been withdrawn—from lack of funds; she has, therefore, of necessity to be allowed to get up gradually before undertaking the journey home. The diastolic bruit, cardiac dilatation, and rapid pulse are all in evidence again.

3. *Aortic Disease.*—Whereas mitral regurgitation in children seems never to lead per se to much hypertrophy of the right ventricle, aortic regurgitation is always apparently accompanied by a marked hypertrophic enlargement of the left ventricle, the apex beat having been found in the sixth space with a forcible impulse in every one of the nine cases examined. For some reason, aortic stenosis seems to be a rare complication of rheumatic disease, though it was present in one case examined, with a very definite history of recurring attacks of rheumatism spread over four years. Possibly the earlier regression of the vasculature from the aortic valve cusps may account for the relative infrequency of this severe complication. Aortic lesions, being rarer than myocardial and mitral lesions, are more apt to be complicated by the occurrence of the latter, and are, therefore, probably harder to study in detail. Adults suffering from aortic disease of other than rheumatic origin are frequently able to live active lives, and the mechanical deficiency of the valve need not, therefore, be considered a sign of great gravity. The amount of rest required by each patient will depend upon the evidence of there still being active infection existing in the heart as a whole, as judged by the presence or absence of change in the physical signs, myocardial and endocardial; the diastolic murmur of aortic regurgitation does not seem ever to undergo any favourable modification.

Analysis of Cases.

The following is an analysis of my own 44 cases (33 girls, 11 boys) under treatment at the seaside for rheumatic disease—mostly during the past two years. The average age was 10 years, the lowest age encountered being 6 years. It is important, I think, to say that the children have been very content and happy, even when confined to bed for many months, and this necessary factor has been due entirely to the tactful supervision of the sisters and nursing staff. Only two girls became fretful under treatment and neither did well; such children are best got rid of, partly because under emotional stress they do not make good progress, but also in the interests of the other patients in the wards. It has been found very important to have isolation accommodation for any child with a pyrexial attack, especially when tonsillitis is present.

1. Girl, aged 12; history of chorea two years; heart normal but beat rather irregular; discharged free from symptoms within six weeks. Re-examined after 18 months. Return of chorea. Heart-beat excitable still.

2. Girl, aged 12; history of chorea two months; heart normal but for soft systolic murmur, which soon disappeared. Remained six weeks. Re-examined after 18 months: quite normal.

3. Boy, aged 8; history of chorea nine months; heart normal on admission, but reduplicated second sound at apex developed; this was corrected by rest; he remained six weeks. Re-examined after 18 months: fresh chorea, some cardiac dilatation.

4. Boy, aged 8; chorea for three years, also rheumatic pains; heart normal but for slight irregularity of pulse; remained six weeks. Re-examined after 18 months: fresh chorea, some cardiac dilatation.

5. Girl, aged 13; slight attacks of rheumatism during one year; heart normal; remained six weeks. Re-examined after 18 months: quite normal.

6. Boy, aged 9; chorea eight weeks; heart normal; remained six weeks. Re-examined after 18 months: quite normal.

7. Boy, aged 9; history of chorea; heart normal; remained six weeks. Re-examined after 18 months Chorea still present, heart normal.

8. Girl, aged 9; rheumatic pains three weeks before admission; no present symptoms; remained three months. Re-examined after 18 months. Had had further heart attacks. Heart showed left ventricular enlargement and aortic regurgitation.

9. Boy, aged 7; pain in one hip for eight months; admitted with hitherto undetected heart disease (mitral regurgitation and early stenosis; aortic regurgitation), shortly developed acute tonsillitis, thought to have infected a nurse and four other cases (10, 11, 12, and 13) directly or indirectly. Withdrawn after three weeks.

10.* Girl, aged 14; continually repeated rheumatic attacks for two years. Showed pallor, tumultuous and rapid heart-beat with systolic retraction of the chest wall from extensive adherent pericardium; mitral disease; great cardiac hypertrophy; appeared very ill. Great improvement effected during first year in country. Then four recrudescences occurred in April to July, 1923, thought to have followed on exposure to infection from Case 9. Patient again became very pale and ill, and the heart took on the characteristics of auricular fibrillation. She got better under the influence of digitalis, but was shortly afterwards sent back to hospital with a grave prognosis. She has since died. Post mortem: the heart reveals very extensive adherent pericarditis, but no mediastinitis, great thickening of the mitral valve, and a few small recent vegetations on the aortic valve. There was general muscular hypertrophy.

11. Boy, aged 9; no history of rheumatism, but had been in and out of hospitals for chorea for three years. Considerable cardiac dilatation; mitral regurgitation and obstruction (apical diastolic bruit). Chorea got cured with rest and arsenic in five months. Heart condition much improved till reinfected, as is thought, from Case 9, when slight feverish condition with sore throat was followed after a month by long illness—pyrexia for three weeks, return of pallor, and intensification of all heart signs. Is now much better and beginning to get up again; all bruits remain as before.

12. Girl, aged 11; pains in joints 13 weeks, then chorea. Heart normal but for a mitral systolic bruit; an excitable pulse soon quieted down with rest. Then had seven days fever, resulting, as was thought, from reinfection from Case 9. Getting better again now, but mitral obstruction and aortic regurgitation have resulted from this illness (diastolic apical bruit and diastolic basal murmur).

13. Girl, aged 6; rheumatic fever three months before admission; slight chorea on admission; heart normal. Acquired tonsillitis, possibly indirectly from Case 9, after which mid-diastolic bruit at apex appeared; this was abolished after six weeks' rest. Now progressing well.

14. Girl, aged 13; rheumatic pain three months; had had dyspnœa. Heart showed on admission long-established heart disease. Hypertrophy of right and left ventricles; murmurs of mitral regurgitation, mitral stenosis, and aortic regurgitation; epigastric pulsation. Pulse very excitable—not affected by any drug. Kept at rest 11 months, then began to get up little by little. At the end of 18 months some ascites, œdema of feet, albuminuria occurred, soon corrected by short rest and full doses of digitalis. Now doing well again without digitalis. Future very uncertain. Pulse always most rapid and excitable.

15. Girl, aged 10; four times in hospital for chorea and rheumatism since 1919. Altogether five attacks of chorea and many sore throats. R. ventricle hypertrophied; bruit of mitral stenosis. Rest for three months. Now getting up; pulse has come down from 100 to 76. Heart much less excitable and no longer tumultuous at epigastrium.

16. Girl, aged 9; ill off and on for a long time. Heart dilated; presystolic bruit has become converted into mid-diastolic bruit in 14 days. Still at rest. Heart rapid and excitable.

17. Girl, aged 9; mitral regurgitation one year; never any pain or sore throat or chorea. Pulse rather rapid and variable; soft systolic murmur. Convalescent after three months.

* I am indebted to Dr. Clifford Ellingworth, of the West London Hospital, for kindly sending me the heart of Case 10 to examine post mortem.

18. Girl, aged 13; three attacks in two years; endocarditis and pericarditis; pain in precordium. General hypertrophy of heart; soft systolic murmurs. Pulmonary second accentuated. Excitable pulse is now quiet after two months' rest. Getting up bit by bit.

19. Girl, aged 9; history of rheumatic carditis 11 weeks. Pulse rapid and excitable. Very slight chorea. Mitral regurgitation and obstruction (apical reduplicated second sound). Pallor. After seven months' rest pallor, excitable pulse, and apical reduplicated second sound vanished. Returned home after about a year. Re-examined seven months later, mitral regurgitation only. Pulse quiet, arrest of mitral stenosis.

20. Girl, aged 8; history of slight rheumatism, resulting in endocarditis and pericarditis during 18 weeks before admission. Heart normal except for systolic murmur at apex, which disappeared after ten weeks; was completely at rest for one month. Withdrawn from treatment after ten weeks. Re-examined a year later: had had fresh attack of rheumatic fever, now some dyspnœa and general cardiac hypertrophy, probably from adherent pericardium.

21. Girl, aged 12; chorea one year, often has pains in legs and arms, also sore throat sometimes. Heart normal. Chorea stopped by rest and liq. arsenicalis ℥ vii. t.d.s. Now getting up.

22. Girl, aged 8; chorea ten months. Heart: soft systolic murmur with reduplicated apical second sound (mitral obstruction). Rested for five months, at the end of which reduplicated second sound was gone; chorea disappeared with liq. arsenicalis ℥ iv. t.d.s. Re-examined after 18 months: heart normal, but had had some chorea, considered functional at hospital. Is now quite well.

23. Girl, aged 12; three attacks of rheumatism during two years before admission. Heart dilated, pulse excitable. Soft systolic and reduplicated apical second sound (mitral obstruction). Pale. Rested for seven months. Pulse quieted down after three months, systolic murmur disappeared in six months, and obstruction bruit in seven months. Re-examined after 18 months: heart approximately normal in dimensions, no adventitious signs on auscultation.

24. Girl, aged 12; acute rheumatic fever seven weeks before admission. Pulse excitable; heart very dilated. Soft systolic and well-marked presystolic bruits. Presystolic soon gave place to mid-diastolic bruit, then to reduplicated apical second sound. After two months child began to fret owing to letters from home, and heart signs began to reappear. As she never settled down again she was discharged after four months.

25. Girl, aged 13: rheumatic carditis two months; double mitral bruit. Heart had soft systolic only; remained at seaside four months. Re-examined 18 months later: systolic murmur only present, chorea once again.

26. Girl, aged 14: rheumatism at least five times in five years. Heart-beat very rapid; double mitral and double aortic bruits; marked pallor. Kept at rest, but fretted to be home very much; very emotional. Allowed to get up gently; pyrexia and arthritis began. Was doing no good and was discharged home where she died soon after.

27. Girl, aged 12; history: rheumatic fever seven months before admission for two months; in bed three months, getting up since; now very short of breath. Very ill and pale; heart enormously dilated; soft systolic and diastolic apical bruits. Nodules over elbows and knee; erythema iris developed on the back; pyrexia frequently; kept at rest, but steadily deteriorated and died in less than six weeks.

28. Girl, aged 12: cardiac trouble for three years since acute rheumatism. Double mitral bruit present. Was kept at rest, but was withdrawn from seaside; died some weeks or months later.

29. Girl, aged 9; contracted subacute rheumatism at seaside; quickly followed by chorea and soft mitral systolic and mitral diastolic bruits with some cardiac dilatation. Kept at rest for four and a half months; all symptoms and signs completely cleared up, and after eight months she was allowed to live a normal quiet life. After three years the heart's condition remains normal and there has been no relapse at any time.

30. Girl, aged 11; chorea two months. Appeared normal in every way and was given moderate rest for two months, then discharged. Readmitted much worse after three months; bad chorea present and cardiac dilatation and soft systolic murmur at apex. All symptoms reduced by rest and Fowler's solution in three months. Re-examined after six months: normal in every respect.

31. Boy, aged 8; free from chorea one month after first attack. Bruits: soft mitral systolic and mitral diastolic. The latter disappeared with three weeks' complete rest. Withdrawn from treatment.

32. Girl, aged 14: rheumatic illness five or six times in two years. Heart: very rapid and excitable beat; systolic and presystolic murmurs at apex. Also aortic diastolic with enlarged left ventricle. Presystolic bruit was accompanied by a thrill, but with complete rest gave way to reduplicated apical second sound in three weeks, which disappeared in another five weeks. Shortly afterwards child was withdrawn from treatment and then discharged after being allowed to get up; showed all the original cardiac signs. Duration of treatment under three months.

33. Girl, aged 11; heart trouble for two years, rheumatic endocarditis. Generalised cardiac hypertrophy, probably from chronic adhesive pericarditis. Mitral systolic and mitral diastolic murmurs. Pulse very excitable. Kept at rest, mitral diastolic bruit was abolished in two months, but other signs persisted. Recently withdrawn from treatment. Prognosis considered grave.

34. Girl, aged 13; rheumatism and chorea six months. Heart normal, but for soft systolic, which disappeared in six weeks. Discharged shortly afterwards.

35. Boy, aged 8; heart trouble for six months. Heart rather dilated, and occasionally a reduplicated apical second sound heard. Tendency noted for heart to become markedly dilated on any slight additional exertion. Gradually became convalescent during six months, and on re-examination 18 months from first admission was normal in every way.

36. Boy, aged 9; chorea for four months, mitral diastolic murmur very faintly audible at times. Withdrawn.

37. Girl, aged 9; tuberculous child discovered to have very rapid and excitable heart with pulsation in the neck. No rheumatic history, but thought to be rheumatic. Pulse settled down to deliberate rhythm in five months. Re-examined seven months later: perfectly normal.

38. Girl, aged 9; chorea one year, rheumatism once recently. Some cardiac dilatation, soft systolic murmur; pallor. Withdrawn after two and a half months. Re-examined after six months: had had a fresh attack of rheumatism with chorea. Heart condition much as before.

39. Girl, aged 9; had "growing pains," then chorea six weeks before admission. Heart dilated with soft systolic murmur. Heart normal in ten weeks' time; kept in bed for a month. Re-examined after six months: normal.

40. Girl, aged 10; subacute rheumatism two months. Heart normal; discharged after six weeks. Will be re-examined next year, if possible.

41. Boy, aged 8; rheumatic pains three weeks before admission. Heart perfectly normal. Stayed for three months; normal on discharge. Re-examined 18 months later: had had bad relapse with resulting aortic disease and great left heart hypertrophy.

42. Girl, aged 11; rheumatism 12 weeks. Heart showed rapid action, musical mitral systolic, and reduplicated second sound at apex. Considerable dilatation. Withdrawn from treatment after three months. In Carshalton hospital 18 months later.

43. Girl, aged 13; pains in legs three to four years before admission. Has been attending hospital ever since on and off. Pains again this year. Heart shows a soft systolic murmur only. Infection would seem to be of a very low virulence if active at all. Is now getting up after a month's rest.

44. Boy, aged 13; acute rheumatism, following upon tonsillectomy; operation was performed in consequence of recurrent attacks of tonsillitis. All the joints returned to normal except one ankle, which became pyæmic and had to be incised and is now ankylosed. The heart is normal in dimensions but shows a soft systolic murmur; he has also had a considerable amount of chorea, which was abolished by rest and Fowler's solution. This case is of special interest as showing characteristics of both metastatic arthritis and of rheumatic disease. He is having an arthroplasty performed upon the ankle this year, six months after the incision over the joint was completely healed.

Conclusions.

1. The absence of a working knowledge of the bacteriology underlying rheumatic disease is an important factor in delaying the recognition of the great need that exists of controlling a disease which is of very widespread incidence and which has far-reaching effects upon the health of the community. At the same time, the absence of institutions where patients might be under collective observation prevents there being an opportunity for organised research upon the causation of the disease. Here there is indeed a vicious circle.

2. While no doubt family predisposition, bad housing, and damp are important factors in spreading the disease, there is evidence that rheumatic disease may be infectious, in which case the isolation of patients suffering from the rheumatic state would be desirable.

3. In rheumatic children sent away to the country for a period of rest, it has been found that the shorter their stay in the country, the more frequently do they relapse, and vice versâ; this, moreover, appears to be the case independently, to some extent, of whether they have heart disease or not. The longer the stay, therefore, the better the prognosis is likely to become.

4. Tonsillectomy is an important factor in controlling the recurrence of acute rheumatism and rheumatic pains; it is less effective in chorea (W. St. Lawrence).

5. It would be in the end an economy of time and money as well as of health if every child who had shown any manifestation of rheumatic disease were sent into the country for a long term of rest or quiet life, just as tuberculous cases are sent away.

6. Many cases could only be arrested in an early stage if the disease were made notifiable; notification would also enable contacts to be inquired into and examined—an important point in view of the insidious onset of the disease in many cases, and of its common incidence in members of the same family.

7. Cases require complete rest in bed so long as there is any indication that there is active disease, as would be shown by (*a*) constitutional signs and symptoms; (*b*) progressive changes in the physical signs manifested by the heart; even favourable changes are to be taken as evidence that an active infective phase has not entirely been closed.

8. Chorea is a complicating constitutional symptom of rheumatism, though often the first that comes under the parents' notice. Given, however, a long-time outlook in the prognosis and treatment of rheumatic disease as a whole, this symptom, like the other constitutional symptoms—e.g., joint pains, anæmia, and pyrexia—will probably yield to treatment. In chorea, however, a functional element is often predominant; consequently the intensity of the movements and emotions is then no close measure of the extent of the active rheumatic infection, and in this way chorea differs from the other constitutional symptoms. In such cases a discriminating emotional restraint is of the greatest importance.

9. In the diet, milk is the most important ingredient, and where there are any active constitutional symptoms—e.g., pyrexia, arthritis, and rapid pulse, a milky diet or even milk alone should be the only food given. Such a diet has an important effect in reducing the temperature, as was pointed out to me recently by Dr. R. G. Hicks, of Ramsgate.

10. Drugs are most important as adjuncts to a scheme of long-time treatment; their danger consists in their being allowed to replace it. The following may especially be mentioned:—

(*a*) *Salicylate of Soda.*—Full doses are given in cases of relapse with pyrexia, especially when pain is present. Double doses of the bicarbonate of soda are always given at the same time.

(*b*) *Arsenic.*—Fowler's solution usually completes the reduction, by rest in bed, of chorea, if given time enough. The dose is increased week by week by ℥ i., starting from ℥ ii. and progressing up to ℥ vi. or even ℥ ix. t.d.s. Symptoms of intolerance have not been met with, and the choreic symptoms disappear at a certain level of dosage; the dose is then kept constant for two or three weeks, after which it is similarly lowered by ℥ i. or ℥ ii. every week, until the drug has been left off. In cases of intolerance to the oral administration of arsenic, cacodylate of soda given hypodermically would probably be useful.

(*c*) *Digitalis.*—Moderate or full doses of the tincture are useful in some cases of recent or active myocarditis. One effect of the rheumatic poison upon the myocardium, unlike that of typhoid fever, is excitation, and the administration of digitalis probably gives rest to the heart muscle by showing the rate of the heart-beat. In many nervous, excitable children, however, it has very little effect.

(*d*) *Iron and Hæmoglobin.*—These are indicated by anæmia persisting during the long convalescent stage.

(*e*) *Opium.*—This drug has not much use in early heart disease; it is of use rather in cases of great excitability of the heart associated with pericardial adhesion, and is usually given in company with digitalis.

11. In rheumatic disease generally it appears that a much longer outlook has to be taken of the time-element necessary to effect a cure. A length of time, approximating even to that required for the cure of tuberculous cases, would not be unreasonable in view of the comparative destructiveness of the disease. Under the present conditions available for poor folk any prognosis other than a grave one is unreasonable, while even among the well-to-do, cases may be seen of the most fatal and crippling type, because sufficient rest has not been persisted in at the onset. The fact that in some cases the child does not feel ill at all until the heart has suffered irretrievable damage points to the absolute need for constant supervision of the heart in the early stages of the disease, and such constant supervision cannot be carried on effectively under the general conditions obtaining at present; similarly, the carrying out of adequate after-care in cases discharged from the hospitals is at present exceedingly difficult to manage. Early and prolonged treatment and regular and prolonged after-care are the most important requirements in the management of acute rheumatism to-day.

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SPINAL ANÆSTHESIA AND ITS DRAWBACKS.

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SINCE entering into everyday use under the powerful influence, first of Tuffier and afterwards of Chaput, spinal anæsthesia has been amply discussed, and since the war the question has been permanently to the fore; its undoubted and numerous advantages have been vaunted and its disadvantages have been emphasised—often with considerable force, for it has been held responsible for accidents of considerable gravity. My chief, Paul Riche, initiated me into the practice of spinal anæsthesia by stovaine in 1909, and I have since then personally carried out some 2000 spinal anæsthesias, which number perhaps entitles me to a personal opinion borne out by facts.

I do not wish to deal here with the indications, technique, or advantages of this method. Wishing to define its disadvantages, I observed with the greatest care the cases of 260 patients rachianæsthetised and operated upon by myself at Prof. Gosset's private clinic—not only at the time of the operation itself but also during the post-operative period—I made notes of the anæsthetic used, the incidents occurring during anæsthesia and the days following, and, finally, after a considerable length of time had elapsed; it is the result of these observations which I wish to summarise here.

Technique.

There are, of course, two distinct forms of spinal anæsthesia: (1) Spinal anæsthesia limited to sub-umbilical operations, and (2) generalised spinal anæsthesia. The latter may be attained by two methods, one being Jonesco's, consisting in administering the anæsthetic at different heights of the spine by means of spinal punctures, the height of which depends on the extent of the anæsthesia desired;

and the second that of Le Filliatre, Delmas, and others, consisting in the evacuation of cerebro-spinal fluid, the quantity of which is in direct ratio to the extent of the anæsthesia desired, and varies from 20 to 25, 30 and 35 c.cm. of fluid. In this manner, after the injection of the anæsthetic, insensibility may be obtained as far as the trigeminal region.

I have carried out spinal anæsthesia by the Le Filliatre method in cases of operations above the level of the umbilicus, without obtaining results of remarkable constancy or quality, whereas I have almost always noticed (in one case out of every two) that the patients bore badly these large withdrawals of cerebro-spinal fluid and the dissemination of the anæsthetic as far as the highest regions of the cerebro-spinal axis. I have given up spinal anæsthesia entirely for all operations not limited to the sub-umbilical segment of the body.

I usually perform the lumbar puncture between the third and fourth lumbar vertebra, withdrawing 10 c.cm. of cerebro-spinal fluid and, using fine needles (Tuffier's), inject 5 cg. of a 10 per cent. solution of stovaine-billon. I have used other anæsthetics in a number of cases, but have not thereby found any advantage, and have always reverted to stovaine which, in the course of some 2000 cases, has never given serious trouble, and has so far not been the cause of death or permanent or definite injury.

Statistics of Cases Treated.

I have followed up 270 cases of spinal anæsthesia, the most recent dating from December, 1922, and have made a point of noting scrupulously every incident in their history. The cases were as follows:—

214	anæsthetised	with	stovaine, 10 per cent. solution.
5	,,	,,	scurocaine.
18	,,	,,	syncaine.
3	,,	,,	novocaine Merck.
30	,,	,,	stovaine caffeine according to a formula similar to that of Jonesco.

Of these 270 cases of anæsthesia, only seven were for sub-umbilical operations. I was completely unsuccessful in 10 cases which necessitated a second anæsthesia; all observations were conclusive from that point of view, the patients being nervous and uneasy. In five cases there was an insufficient flow of the cerebro-spinal fluid at the time of the puncture. Out of these 10 cases there were:—

7	anæsthetised	with	stovaine.
2	,,	,,	syncaine.
1	,,	,,	novocaine.

In one case where syncaine did not take effect I administered stovaine a second time, obtaining an excellent result. In 3·7 per cent. of the cases no anæsthesia whatsoever was obtained, either objectively or subjectively, and a second administration was thus required. In eight cases (stovaine) the anæsthesia was adequate and enabled the operation to be carried out, but the patients noticed a sensation of discomfort and pain, especially at the moment of the opening of the peritoneum and during the abdominal manipulations, internal traction, separation of adhesions, &c. In all the other cases, 242 out of 260, anæsthesia was perfect and lasted from one hour to one hour and a quarter.

Discussion of Failures.

How can these failures, some complete, some partial, be explained? They might be attributed to a bad quality of the anæsthetic, which is unlikely, as the ampoules containing it are prepared in great quantities. The product may be acted upon by the glass of the ampoule; this explanation has value, because hard glass unaffected by water at the temperature of the autoclave is at present difficult to obtain industrially.

It may also be considered that the anæsthetic has not been carried entirely into the interior of the theca. The needle terminates in a fairly long bevel, and if the penetration into the subarachnoid space has been incomplete—i.e., if the dura mater is astride the bevel—the anæsthetic solution may be distributed either entirely or partly around the dura mater, which explains the insufficiency or absence of anæsthesia. Finally, the possibility of compartments existing in the subarachnoid space must not be lost sight of, because in cases of insufficient anæsthesia, and even when the anæsthesia is perfect, an absence of motor paralysis is noticeable, as if the anterior roots had not been touched by the anæsthetic used. Then there are patients whose psychological condition prohibits the use of spinal anæsthesia.

During the period of anæsthesia I have noticed cyanosis three times, and 40 cases of vomiting, sometimes accompanied by pallor with sweating and dizziness. The three cases of cyanosis recorded were observed during extensive anæsthesia administered for operations above the level of the umbilicus—viz., three cases of cholecystectomy. The anæsthetic used was stovaine, with a withdrawal of 20 c.cm. of cerebro-spinal fluid. In 40 cases of vomiting the anæsthetics were distributed as follows: 30 stovaine (pure), two scurocaine, eight syncaine. In the above record stovaine caused vomiting during operation 30 times out of 214 cases—i.e., in 14 per cent. of the cases recorded.

Post-Operative Complications.

The study of the post-operative incidents is no less interesting.

Vomiting.—Of 29 cases, in 23 the vomiting was of short duration. In 20 of the latter the symptom was recorded in the first 12 hours after the operation; in the remaining three cases there was vomiting during 24 or 48 hours, accompanied in these cases by headaches, torpor, slight photophobia, and occurring without any cause, or as the result of a change in position. In six cases the vomiting lasted over six days, accompanied, moreover, by severe cephalalgia and an undeniable state of torpor with saburral tongue.

Cephalalgia.—Of 37 cases, in 23 cephalalgia occurred during two or three days, commencing 24 or 48 hours after the operation and accompanied, in three cases, by vomiting of a cerebral type. These cases of transitory cephalalgia could be overcome by aspirin and absolute rest without any other treatment. The anæsthetic used was in 16 cases stovaine (pure), in two scurocaine, in five syncaine. In 14 cases the cephalalgia was more intense and lasting. It is interesting to note that these prolonged cases of intense cephalalgia occur either immediately after the operation, lasting four or six days, or several days after the operation—i.e., real retarded cephalalgia, lasting variable periods. The cephalalgia usually occurred alone; in six cases it was accompanied by vomiting.

Of the remaining 14 cases the anæsthetic used was stovaine in 12, scurocaine in one, and syncaine in one. Summarising the cases of cephalalgia, then, we have: In 240 cases of spinal anæsthesia, 37 (or 16 per cent.) had cephalalgia; in 214 of these 240 cases stovaine was administered, and 28 of the 214 (or 13 per cent.) had cephalalgia; in the remaining 26 of the 214, nine cases (or 34 per cent.) had cephalalgia, three of these nine having had scurocaine administered, and six syncaine.

The cephalalgia is often aggravating, always troublesome, and difficult to account for, many hypotheses having been advanced in the matter. It is due to meningeal irritation; it was once thought that it was consecutive to phenomena due to hyper-pressure, but cases in which a slow pulse-rate is recorded are altogether exceptional. I noticed this in one case only (spinal anæsthesia by stovaine). I performed an evacuating lumbar puncture, which did not modify the cephalalgia. It has also been attributed to the escape of cerebro-spinal fluid through the breach in the rigid dura mater formed by

the puncturing needle. Whilst emphasising the power of secretion of the choroid plexuses, which tends to prevent this loss, it should be noted that the use of the finest of needles and all the steps taken to prevent such oozing, ventral decubitus in particular, are without result. Finally, it is a matter of experience that cephalalgia occurs in series, without its being known exactly why and without its being possible to attribute it more to the one or the other anæsthetic used. In any case it constitutes the most important complication of spinal anæsthesia.

Other Complications.—I observed, beyond these complications, one case of subicterus in an operation for hernia (stovaine); one case of shingles on the second day (stovaine), combined with a cerebral syndrome characterised by cephalalgia and vomiting; two cases of strabismus through transitory paralysis of the external ocular motor. These two cases were observed after spinal anæsthesia by stovaine; strabismus was combined with a syndrome of meningeal irritation, consisting of cephalalgia and vomiting. The patients were non-syphilitic. In both cases the strabismus was progressive. It occurred on the sixth day, diplopia lasted five to seven days, and finally subsided completely.

In order to give a complete account of my observations, I must mention that I recorded 12 cases of pulmonary congestion, of which 10 occurred after spinal anæsthesia by stovaine, which proves that spinal anæsthesia is no protection against post-operative pulmonary complications, as has been erroneously thought. Such are the only disorders recorded. I have not recorded any cases of paralysis or paresis of the lower limbs, or of sphincteral disorders, such as have been brought to notice. In my 2000 cases of spinal anæsthesia there has not been a single case of fatal complication.

I have carried out spinal anæsthesia in 30 cases with the stovaine-caffeine mixture similar to Jonesco's and corresponding to the following formula: Stovaine 0·06 g., caffeine 0·50 g., sodium benzoate 0·50 g., water q.s. for 2 c.cm., in sterilised ampoules.

Patients who were rachianæsthetised in this manner did not undergo any facial alteration; the face retained its normal colour, or even became slightly coloured. The pulse was not modified. In five cases out of 30 I observed vomiting during the operation. The most remarkable thing is that the patients had no post-operative inconvenience, and cephalalgia was not recorded in any of the cases injected with the above-mentioned stovaine-caffeine mixture. It would appear, therefore, that the addition of caffeine to stovaine not only does not modify the anæsthetic properties of this product, but, by practically completely obviating cephalalgia and reducing vomiting considerably, improves to a great extent the after-effects of the anæsthesia.

The superiority of this mixture of stovaine and caffeine has already been pointed out by Jonesco, and also by Carlos E. Roe, of Madrid, in *Medicina Ibera* of Nov. 11th, 1922. The latter has performed 5005 spinal anæsthesias. He uses stovaine in doses of 0·07 g., and has had only one fatal case in which for an operation of the thorax he injected 0·12 g. of stovaine by the Le Filliatre method. Since 1921 he has used the following mixture: Stovaine 0·07 g., caffeine 0·20 g., water 1 c.cm.

The post-anæsthetic sequelæ emphasised by writers were not noticed by Roe, who considers that the interpretation of these symptoms is pure imagination. In 1921[1] René, Bloch and Hertz published five observations of serious cases of syncope successfully treated by intraspinal injections of caffeine. These cases of syncope were consecutive to generalised anæsthesia administered by the Le Filliatre-Delmas method with syncaine or scurocaine as anæsthetic agent. Recently[2] there appeared eight further observations of serious cases of syncope, following spinal anæsthesia administered in every case for operations on the sub-umbilical segment of the body. The different anæsthetics used were: Novocaine, five cases; syncaine, two; scurocaine, one case. Two of these cases of syncope were fatal; all eight were treated with intraspinal injections of caffeine, and six cures resulted.

One cannot help noticing that the serious complications recorded requiring "heroic medication" are not consecutive to spinal anæsthesia administered with stovaine. Personally, in some 2000 cases, I have never encountered accidents of such considerable gravity, nor have I ever found myself compelled to imitate Bloch and Hertz in administering a secondary injection of caffeine into the subarachnoid space. The observations of different origin which have been published by these authors show that spinal anæsthesia was practised on the lower segments of the body. No attempt was made to obtain generalised anæsthesia, yet there were eight cases of serious syncope, the anæsthetic used being novocaine or one of its derivatives; thus I cannot agree with Bloch and Hertz that this product is non-toxic. Bloch and Hertz point out an interesting fact—namely, that the mixture of novocaine-caffeine has imperfect anæsthetic properties; this brings it into contrast with the remarkable efficacy of the stovaine-caffeine mixture, as personally experienced by myself, by Jonesco, and by Roe. Bloch and Hertz conclude that the reduction of the anæsthetic properties of novocaine through the addition of caffeine proves the lesser toxicity of the latter. This conclusion is difficult to comprehend. The fact would go to, prove that the anæsthetic value of novocaine is less, but this is not new, and the descending hierarchy of the anæsthetic value of cocaine, of stovaine, and of novocaine has been known for a very long time.

The interesting researches of Bloch and Hertz into intraspinal injection of caffeine to try and arrest serious syncope—which would appear to be fairly frequent, and which was first heard of in 1921, when spinal anæsthesia had been known for 25 years—I have had the privilege of persuading surgeons in favour of this method to associate caffeine with the anæsthetic, an attempt similar to that made a long time ago when the strychnine-stovaine mixture was being used.

Summary.

In some 2000 cases of spinal anæsthesia by stovaine I have never experienced a fatal accident, nor have I had to resort to the "heroic medication" of René, Bloch and Hertz, because I have never met with syncope similar to that described by them. I have studied all the immediate and consecutive disturbances in 260 cases of spinal anæsthesia: cephalalgia, vomiting, strabismus, &c., of which I have already given details. In 30 cases of spinal anæsthesia by stovaine-caffeine I met with no complications. This brings home to me the superiority of this mixture, provided that it be used for sub-umbilical operations according to the technique laid down by Tuffier and Chaput, which is the only one justifying the statement that spinal anæsthesia is the ideal anæsthesia for the single-handed practitioner. Up to July 1st I carried out 90 operations of spinal anæsthesia with the stovaine-caffeine mixture, and always met with the same favourable results. I no longer notice the syndrome of anguish, pallor, sweating, and vomiting during the anæsthesia. In some cases there was isolated vomiting, but in all the patient looked reposed and showed normal facial colouring. No headache or post-operative vomiting was induced. In some cases the duration of the anæsthesia, which attains and exceeds 50 minutes with stovaine, is slightly shortened.

Note.—Experience has proven that it would be advantageous to diminish the dose of caffeine. I have noticed, in fact, in one case a prolonged retention of urine not remarked till then in my observations. Jonesco has drawn similar conclusions. The dose of caffeine to be used should not exceed 0·15 g.

[1] La Presse Médicale, 1921, No. 53.
[2] Ibid., 1923, No. 2, Feb. 7.

THE TREATMENT OF RHINO-LARYNGOLOGICAL TUBERCULOSIS BY FINSEN LIGHT BATHS, AND RESULTS.*

BY DR. OVE STRANDBERG.

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THE treatment of rhino-laryngological tuberculosis by means of the Finsen light is not entirely new; for as early as nine years ago I published the first few results obtained after treatment of tuberculosis of the larynx by the Finsen light; since then my number of cases has greatly increased and the treatment has been thoroughly tested.

The Method.

The Finsen bath consists mainly of an electrical carbon arc light which is supplied in two sizes, a small one and one somewhat larger. The small one is used for the treatment of more serious cases, who cannot bear to sit up—for instance, patients with tuberculosis of the larynx or patients recently operated on for tuberculosis of the ear. It consists of a system of three electric carbon arc lamps, which are connected either in parallel or in series, the latter, however, only when using a current of 220 volts which will then require a series resistance of 55 volts. The lamps are suspended from the ceiling and have check-rods in a perpendicular plane to prevent the lamps from rotary movement. The lamps must be capable of a perpendicular movement of one metre so that in the end-positions the distance of the light arc from the floor is 75 cm. and 1·75, but these measurements are naturally subject to alteration according to the height of the patient's couch. Two patients, each on his own couch, can be treated simultaneously by this type of Finsen bath. The couch must be as close to the light as possible. The lamps use 20 amperes and 55 volts each. The distance between the light arcs is 550 mm.

With regard to the large Finsen bath, six to eight patients can be treated at the same time, sitting round two large electric carbon arc lamps, each of 75 amperes and 55 volts. The distance between the light arcs of the two lamps is 600 mm. The carbon-electrodes of the lamps are situated perpendicular to each other, the positive being fitted uppermost, because if direct current is used a crater will be formed in the positive electrode, and from this crater the greater part of the effective rays is radiated. With alternating current, on the contrary, the light-cone is emitted from the upper and the lower carbon-electrode alternately, and hence, so much effective chemical light is lost that alternating current cannot be used, without first being converted into direct current. No glass or other covering round the light should be used, as the chemical rays would then be absorbed. The lamps must burn with a clear, steady light, and the carbon-electrodes must not be allowed to glow or to soot up. It is evident that the large lamps generate a larger amount of chemical light than the small ones, but this difference is neutralised by the fact that the patients cannot sit as close to the large lamps as they can lie near to the small ones, because the latter give off less heat than the large ones, and it is of importance that it should be possible to place the patients closer to the light of the small lamps, because the intensity of the light decreases with the square of the distance. On account of the strong light the faces and the eyes of the patients are protected by a paper shade, but otherwise they are completely naked. They must be placed as near to the light as they can bear the heat, and they must turn round occasionally in order that the light may be equally distributed all over the body. When using the large lamps of 75 amperes, a room with a cubic capacity of 90 to 100 m. and with a floor area of 5 by 4·8 metres will be necessary. With the three small lamps, a cubic capacity of 75 to 80 m. and a floor area of 5·5 by 3·5 metres will be sufficient.

The Indications.

Patients with tuberculosis of the larynx or those who are seriously ill or feverish, lie in the Finsen bath the first few days from 10 to 15 minutes, slowly increasing up to the full dose of two and a half hours every alternate day. When they are able to sit up, they may begin with the large lamps, taking a shorter bath the first few times, but they may, of course, continue with the small lamps if more convenient. Patients with other illnesses—for instance, lupus vulgaris, where the state of health in general is good, can well begin with 30 to 45 minutes with the large lamps. After the Finsen bath a tepid shower-bath is always given and the out-patients go home to their work.

In order to be able to treat as many patients as possible we only give a Finsen bath every alternate day, but otherwise I think it is of little importance whether you give a bath every day or only every other day. After the first baths you will find on the body an erythema of varying strength, ranging from an intense blush to the formation of vesicles. In a short time the patients will be brown pigmented, as if sunburnt, and from then onwards will feel no further inconvenience from the Finsen bath; on the contrary, they will find it delightful in every way. It might be expected that patients who walk, during the cold season of the year, straight from a Finsen bath to their work would be more disposed to colds, but my observations would seem to show the contrary.

Contra-indications are shown only in certain heart and kidney troubles—i.e., provided that the latter are not of tuberculous origin. But I am not afraid to treat out-patients also, and even when they have a temperature of 100·4° or 100·8° F. before taking the bath. I have shown, further, that the Finsen bath, even if uncombined with any other treatment, is an effective cure for rhino-laryngological lupus vulgaris and tuberculosis of the larynx; but if you combine the Finsen bath with some other treatment, many of the patients will get well more quickly. Therefore, when treating lupus vulgaris, I always combine the Finsen bath with surgical treatment or electrocoagulation simultaneously. I also do this in many cases of tuberculosis of the larynx.

Heiberg and I have demonstrated—also by histological examination—that the Finsen baths are a thoroughly effective cure for tuberculosis of the nasal mucous membrane, even when uncombined with any other treatment. We have examined the inferior turbinals during various phases of the treatment in a number of cases, and have shown that this treatment exhibited a definite cure. The question of exactly why the Finsen bath has this beneficial effect has not yet been solved.

The Results.

I should like now to mention the results of this treatment when used in lupus vulgaris of the mucous membrane of the nose, mouth, throat and larynx, and in order to do so I will consider the patients who came to my department as new patients during the years 1913 to 1921.

379 Patients Treated for Lupus Vulgaris by Light Baths.

Affections of the—

Nose.	Mouth.	Throat.	Larynx.	V.R.S.	W.R.+	Steth.+
358	90	92	38	123	361	50

V.R.S. = Various regions simultaneously. Steth. = Stethoscopy.

30 Cases Lapsed out of 379—Remainder 349.

Unchanged.	Aggravated.	Died.	Improved.	Still under treatment.	Cured.
1	2	5	9	28	304 = 87·1 %

Periods of Observation for 304 Cured of Lupus Vulgaris.

0–3 ms.	3–6 ms.	6–12 ms.	12–18 ms.	18–24 ms.	2–3 ys.	3–4 ys.	4–5 ys.	5–6 ys.	8–9 ys.	9–10 ys.
66	26	47	39	33	44	19	18	8	3	1

ms. = months. ys. = years.

* Abstract of an occasional lecture delivered before the Royal Society of Medicine on Dec. 3rd. The lecturer was introduced by Sir StClair Thomson. For the history of the Finsen bath, see Strandberg, Acta Laryngologica, vol. iv., fasc. 3, 1922.

Recurrence: 25.

Lapsed cases.	Still under treatment.	Re-cured.
1	3	21

Periods of Observation of 21 Re-cured Cases.

0–3 ms.	3–6 ms.	6–12 ms.	12–18 ms.	18–24 ms.	2–3 ys.
7	1	4	2	1	6

I have treated tuberculosis of the middle ear and the temporal bone with excellent results too, but in view of the brief time I have at my disposal, I will not touch upon them here, but content myself with mentioning the results obtained in tuberculosis proper of the larynx by which term I do not imply the ordinary laryngitis, with some reddening of vocal cords, which is so often found and frequently disappears spontaneously in patients with tuberculosis of the lungs who cough much, but by which I mean the infiltrative or ulcerative affection of the larynx which occurs among patients with tuberculosis of the lungs.

Here we have in all 100 patients, all with aggravated affections of the larynx.

100 Patients with Tuberculosis of Larynx.

Before Treatment.

Hoarseness.	Pain and difficulty in swallowing.	T.B. in sputum.	Tubere. of lungs.	Hæmoptysis.
97	37	80	100	8

After Treatment.

The voice.		Pain and difficulty in swallowing.		Hæmoptysis during treatment.
Clear	78	Cured	32	2, both having had hæmoptysis before treatment.
Improved	15	Improved	3	
Unchanged	4	Unchanged	2	

100 Patients with Tuberculosis of Larynx.

77 out-patients; 23 in-patients.

Cured in larynx.	Still under treatment.	Lapsed cases.		
53	10 all improved.	37	Improved 19	
			Unchanged 6	
			Aggravated 6	Improved 3, Unchanged 1, Aggravated 2
			Died 6	

Periods of Observation of 53 Patients Cured of Tuberculosis of Larynx.

Light baths, 34 cases. Light baths +surgical treatment, 19.

0–3 ms.	3–6 ms.	6–12 ms.	12–18 ms.	18–24 ms.	2–3 ys.	3–4 ys.	4–5 ys.
22	5	8	2	4	7	3	2

Recurrence: 3.

Still under treatment, 2. Re-cured and without recurrence in one year, 1.

It will be seen that 97 were hoarse and many of them completely aphonic before treatment, yet 78 patients regained their voice full and clear; in 15 cases the voice was improved, while in 4 patients only did the voice remain unchanged even after treatment; 37 patients had pain and difficulty in swallowing before treatment, while after treatment 32 were entirely free from these troubles, 3 were improved, and only 2 patients remained unchanged. I may add that pain and difficulty in swallowing frequently passes off very soon. It is noticeable that the only two patients who showed any hæmoptysis had this symptom also before treatment. None of the other patients, however, exhibited any hæmoptysis at all during treatment.

With regard to the 77 patients who were treated as out-patients it must be pointed out that none of them could obtain any kind of sanatorium treatment, and as they lived in poor—and frequently, because of their illness, very poor—homes, they had no money to spend on any kind of special food, and the majority were obliged to work, as best they could, in order to earn sufficient money to support their homes, and this even during the first period of treatment, when they were often very ill indeed. When they had been treated for some time the majority of the patients were able to work much as before their illness. The 10 patients, who are still under treatment, have all improved, and out of the 37 lapsed patients 19 had improved, in some cases so much that they were able either to be admitted to a sanatorium or they felt so well that they would not spend more time on treatment. The words "unchanged" or "aggravated" mean *materially* unchanged or aggravated, while, as will be seen from the table, nearly all the patients were relieved of their pain and difficulty in swallowing. During the treatment 28 out of 53 increased in weight, some patients only a pound or two, but others as much as 30 lb.

The number of treatments with the light bath averaged about 86. Fifty-three per cent. of cures of tuberculosis of the larynx is a very large percentage, larger than that of any other treatment up to date. But this treatment has later been thoroughly tested in other hospitals also; in the Oresunds Hospital for Tuberculosis at Copenhagen Blegvad cured some 30 per cent .of the 110 in-patients. Affections of the larynx which I have treated were often in a very advanced stage. No doubt the percentage of cures might be greatly increased in patients with less advanced lesions and treated at an earlier stage.

A CASE OF A LARGE PHARYNGEAL DIVERTICULUM

CURED BY OPERATION IN TWO STAGES.

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THE following case is recorded owing to its uncommon character. The patient, a cab-driver, aged 54, was admitted to St. George's Hospital on Sept. 21st, 1922, complaining that he "couldn't keep his food down." He had begun to notice this two years previously. At first small amounts were regurgitated immediately after meals and at rare intervals. The amounts had gradually become larger and the intervals shorter. During the two years he had lost two stone in weight, but had remained at work up to the time of admission.

Condition on Admission.—He was thin and weighed only 8 stone, but his general appearance was good and his appetite was not impaired. After each meal he was observed to cough and bring up mouthfuls of frothy mucus mixed with particles of food. The cough caused him some distress and persisted for about an hour, when a large amount of food was suddenly regurgitated. The average amount was 28 ounces. He said that he often brought up something he had eaten two or three days before. Examination disclosed a soft enlargement with ill-defined outlines in the posterior triangle of the neck on the left side. Skiagrams corroborated the diagnosis of pharyngeal pouch. Fig. 1 shows the characteristic rounded outline of the pouch, descending well into the thoracic inlet. Examination with the screen showed that the bismuth first entered the pouch in driblets and continued to do so until the pouch was filled and its rounded outline complete; all the bismuth taken subsequently passed down the œsophagus direct.

It was decided to operate in two stages. For three days previously the pouch was washed out after each meal with saline lotion introduced through a Jacques catheter. It was quite easy to pass the catheter into the pouch and the fundus appeared to be reached at a distance of 12 inches from the incisor teeth.

Operation.—The first stage of the operation took place on Oct. 9th, 1922. An incision 3¼ inches long was made over and parallel to the internal border of the left sterno-mastoid and gradually deepened. The carotid sheath was drawn outwards and the thyroid and trachea gently displaced inwards. The inferior thyroid artery was divided between ligatures. The pouch was brought into view and could be seen to take origin posteriorly, as in all such cases, near the junction of the pharynx and œsophagus. The fundus was gently freed with the finger and brought out into the wound. It was elevated until the internal opening looked downwards and was fixed in that position with catgut sutures to the fascia of the neck. The wound was closed and the pouch left protruding from its upper extremity. At the time of the operation the pouch was 4 inches long, but it rapidly shrank and became quite firm, rather resembling a soft uterine

polypus. Fig. 2 shows the appearance of the pouch one week after the first operation. On the afternoon of the day of the first operation the patient could swallow without difficulty or distress and was naturally delighted.

The second stage of the operation took place on Oct. 30th. The pouch was cut off half an inch from the skin level. The fibrous and mucous layers were easily recognised and separated from each other until it was possible to put a couple of purse-string sutures round the mucous layer and invaginate it. The opening in the fibrous layer was closed with a continuous suture. The skin edges were slightly raised without separating the adhesions round the neck of the pouch and brought together. The patient was discharged from the hospital three weeks later with the wound firmly healed.

On Feb. 28th, 1923, the patient reported for inspection. He had recovered the two stone which he had lost, had been at work continuously since his discharge, and described himself as entirely free from

FIG. 1.

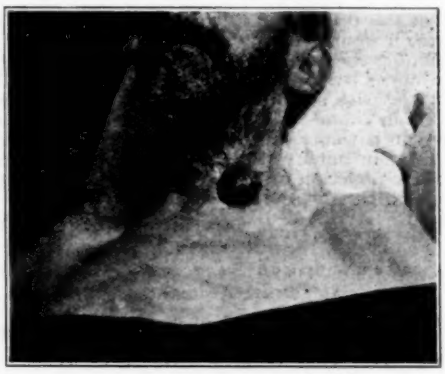
Showing rounded outline of pouch filled with bismuth, and bismuth passing down the œsophagus. (For the photographs we are indebted to Mr. C. P. Miller, of St. George's Hospital.)

any signs of his former trouble. Fig. 3 shows the man's present condition and the wound in the neck completely healed.

Remarks.

Although such cases as this are not so rare as Butlin supposed when he first reported one in 1893,[1] yet they are sufficiently uncommon to justify the record of a single case, in which the pouch was of such great size as to hold nearly a pint and a half. In the earlier operations performed in one stage, there was commonly leakage from opening the pouch and grave risk to the patient from mediastinitis. To avoid this risk some operators recommended invagination of the pouch into the pharynx or œsophagus or fixation upwards to the side of the pharynx without opening it. In such cases temporary success was liable to be followed by recurrence of the symptoms, if the pouch regained its original position. The method adopted in this case secures a radical cure by excision of the pouch, whilst at the same time the risk of mediastinitis is reduced to a minimum, since the sac is not opened until its neck has become firmly adherent to the cervical fascia. Judd has described the operation, which was devised by C. H. Mayo, and has reported ten cases from the Mayo Clinic.[2] Cases have been reported by other surgeons in which the results of the operation, as far as the relief of symptoms is concerned, have not been entirely satisfactory. It may be noted, therefore, that an essential point in order to obtain a good result, is

FIG. 2.



Appearance of pouch one week after first operation.

that the pouch should be drawn upwards as far as possible and fixed to the upper corner of the incision so that the opening points downwards. The opening into the pharynx is thus closed mechanically and food no longer tends to pass into the pouch instead of the œsophagus.

Some authorities have advocated the use of the œsophagoscope, both in the diagnosis and treatment of this condition. The use of this instrument appears to be unnecessary, and in dealing with a thin-walled sac, distended to a great size, by no means free from danger. The characteristic flask-shaped shadow, which the skiagram shows, is sufficient to put the diagnosis beyond doubt, and there is no reason for embarrassing the anæsthetist and complicating the operation by passing the œsophagoscope or a bougie

FIG. 3.

Present condition of patient's neck. Wound completely healed.

into the sac. At operation the pouch may appear to originate at the junction of the pharynx and œsophagus. It has been shown by Killian [3] that actually it originates from the pharynx and passes between the oblique and horizontal portions of the inferior constrictor. His original paper on the subject contains a beautiful anatomical illustration which shows this very clearly and is reproduced in Sir StClair Thomson's well-known text-book.

[1] Butlin: Med. Chir. Soc. Trans., lxxvi., 1893, p. 269.

[2] Judd: Surgery, Gynecology, and Obstetrics, xxvii., 1918, p. 135.

[3] Killian: La Bouche de l'Œsophage, Ann. des Mal. de l'Oreille, xxxiv., Juillet, 1908, p. 1.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

COMBINED SECTIONS OF MEDICINE AND SURGERY.

A MEETING of these two sections was held on Nov. 27th. At the afternoon session Dr. ROBERT HUTCHISON, President of the Section of Medicine, took the chair, and Prof. P. BULL, of Christiania, read a paper on the

SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS.

He referred in appreciative terms to this historic centre of medical science, and warned those of his audience who had heard him speak on the same subject at the Glasgow meeting of the British Medical Association that he had nothing new to tell them. He passed over all historical details and referred only briefly to treatment by artificial pneumothorax, devoting almost the whole of his lecture to the thoracoplastic operations. With regard to the indications for these operations, he insisted that, before they were attempted, an effort should have been made to induce a pneumothorax. If such an induction were successful, it were better to continue treatment by artificial pneumothorax than to adopt the more radical procedure. Generally speaking, the indications for artificial pneumothorax and thoracoplasty were the same, and it was most essential that the state of the healthier lung should justify the hope that the disease in it would remain latent. Should this lung show signs of progressive or extensive disease, no attempt at thoracoplasty should be made; to do so would merely be to bring the operation into bad repute. He had, however, been amazed to find how common cases of unilateral pulmonary tuberculosis were. In the selection of cases, with special reference to the state of the healthier lung, he had found the X rays of great value, and they had been the means of rejecting cases which, on the strength merely of a clinical examination, would have been considered suitable for a thoracoplasty. Among the many indications for this treatment were recurrent hæmoptyses, and he referred to a case in which these had occurred for 17 years, and had been permanently arrested by a thoracoplasty. He did not consider laryngeal tuberculosis or unilateral renal tuberculosis as a contra-indication, and one of his successful cases of thoracoplasty had had one kidney removed on account of tuberculosis, and the patient had since been able to work as a chauffeur without signs of recurrence of the disease. The general health of the patient must be comparatively good, a much debilitated patient being unlikely to stand the shock of the operation. Before this was undertaken, the patient should be under observation for some time in a sanatorium for two reasons: (1) to note whether the disease in the healthier lung was progressive or stationary, and (2) to ascertain if recovery might not be achieved by ordinary sanatorium treatment. In his discussion of the selection of cases for this treatment, Prof. Bull touched on the necessity for coöperation between the physician and the surgeon, and he referred to the harmonious manner in which he and his Norwegian colleague, Dr. Holmboe, of Mesnalien Sanatorium, had pooled their knowledge for the good of the patient. He added that the surgeon might be better qualified than the physician to lay down contra-indications in a given case.

Technique of the Operation.

Prof. Bull expressed his satisfaction with Sauerbruch's incision and stressed the importance of making the operation as radical as possible. The first rib must be included among those resected, the first to the tenth or eleventh ribs being included, an average of 130 cm. of ribs being resected. His minimum length of resected ribs in one case was 90 cm. and his maximum 180 cm. Altogether he had taken 125 yards of ribs from his 92 patients. The most difficult part of the operation was in connexion with the apex of the lung, and in order to ensure its adequate collapse, he performed apicolysis in every case, detaching the apex of the lung from the neighbouring structures, and maintaining its collapse by a fat graft taken from the abdominal wall. Half the right breast might also be used as an apical "stopping." With regard to the comparative merits of the one- and the two-stage operation, he had come to the conclusion that the latter was to be preferred, and whereas he had had a mortality of 30 per cent. among his one-stage operation cases, the operation mortality was only 4·5 per cent. for his two-stage operation cases. As for the anæsthetic, he had largely used local anæsthesia in his earlier cases, but had gradually been converted to the general anæsthetic. He had found it necessary to give morphine and omnopon after the operation and to keep a nurse in constant attendance on the patient for some time, one of her duties being to encourage the patient to expectorate freely. The dyspnœa from which some patients suffered after the operation would seem to be due, at any rate partly, to mediastinal flutter.

Results, Immediate and Late.

Prof. Bull said he had found that the disappearance of tubercle bacilli from the sputum before the patient's discharge after the operation was of great prognostic significance, and in as many as 47 of his cases there were no tubercle bacilli in the sputum on discharge. In 27 cases this important negative evidence of recovery had existed for one to nine years after the operation. He demonstrated a patient on whom he had performed thoracoplasty, as well as numerous illustrations, the chief lesson of which was that an amazingly free range of movement of the arm on the operated side was retained. The spine showed slight scoliosis, and in female patients the breast on the operated side pointed somewhat outwards. But these changes were trivial, and a casual glance at the front view of the patients would hardly give a clue to their having undergone this most radical operation. Prof. Bull was in favour of careful after-treatment in a sanatorium for three to six months and only gradual resumption of work. He was not in favour of such strenuous sport as ski-ing, but some of his patients had indulged not only in this sport, but in cycling and bathing. Prof. Bull amused his audience with an account of a patient who had lived at the expense of the community while he was ill and who, when he found himself restored to health by a thoracoplasty, felt aggrieved because it had robbed him of his claim on the community for sustenance. Several of the patients had been confined after the operation, undergoing labour and passing through the puerperium without complications. Of the 92 patients operated on, 46 were men and 46 were women. There were 33 deaths, nine of which were directly due to the operation. The cause of death in five of these cases was obscure, but it was probably due to flooding of the body with toxins from the compressed lung. In one case of obscure death, hæmorrhages into the stomach and small intestines were found post mortem. Some of the deaths were probably due to mediastinal flutter. In as many as 23 of the 33 deaths the cause was tuberculosis. Of the 59 survivors, 35 were rid of their symptoms, while 15 still suffered from tuberculosis. There were also nine patients about whom no definite results could yet be claimed. Altogether it might be stated that 47 of the 92 patients benefited by the operation, and it was noteworthy that the results were considerably better in the left-sided than in the right-sided cases. There were 56 of the former and 36 of the latter, and while there were only two operation deaths among the left-sided cases, there were as many as seven operation deaths among the right-sided cases. Prof. Bull also discussed the work of other Norwegian surgeons in this field, noting that 12 had performed a total of 135 thoracoplasties, among which there were 15 operation fatalities—i.e., a mortality-rate of 11·1 per cent. In conclusion, he insisted that the most important factor in the prognosis was the

behaviour of the healthier lung after the operation, and that, as in the case of operations for cancer of the rectum, the operator must expect a certain number of relapses many years after the operation. But whereas in cancer of the rectum early diagnosis was essential if the ultimate results were to be good, in pulmonary tuberculosis the ultimate prognosis depended largely on a discriminating choice of patients for thoracoplasty.

Discussion.

DR. CLIVE RIVIERE observed that the surgeon-physician was still an unknown entity in this country, and that when the surgeon coöperated with the physician, the latter should have the last word in the choice of cases suitable for thoracoplasty. He pleaded for careful observation of the patient in a sanatorium before embarking on this radical operation, which was an irrevocable step, whereas an artificial pneumothorax could be discontinued if it proved to be unsatisfactory. As for the choice of patients for lung collapse treatment, the ideal was to watch a case carefully from the beginning of the disease, but in his experience what usually happened was that, when first seen, the patient was already in a stage that was simply crying out for collapse treatment. He had found that, while interstitial pulmonary tuberculosis was almost invariably bilateral, parenchymatous pulmonary tuberculosis was not infrequently unilateral, and these were the cases suitable for lung collapse, provided the disease already showed a tendency to run a fibrotic, chronic course. He knew of no certain method by which the presence of pleural adhesions could be detected other than that of exploratory puncture, and he had been struck by the frequency with which comparative freedom from adhesions existed even in advanced cases. He had found it seldom necessary to cauterise adhesions in order to promote collapse of a lung, but he was greatly impressed by the value of phrenicotomy in certain cases. This operation had been performed in a case under his care, and the division of the phrenic nerve on the affected side had added appreciably to the limitation of the range of movement of the diseased lung. He had found that the condition of the heart in candidates for collapse treatment was often disquieting and that a state of general debility was a contra-indication; the patient must have a certain reserve of vitality if he was to emerge from the ordeal successfully. It was also essential that after-treatment should be prolonged.

Mr. H. MORRISTON DAVIES also spoke in favour of phrenicotomy which he had found beneficial not only in conjunction with an artificial pneumothorax but also by itself. He had known it to afford marked relief of persistent vomiting, and in conjunction with an artificial pneumothorax it was particularly valuable when the base of the lung remained adherent to the diaphragm. Turning to thoracoplasty, he noted that, in maintaining collapse of the apex of a lung, a live fat graft was superior to gas, and that paraffin and wax were liable to be extruded at a later date to the discomfiture of all concerned. In his last series of ten thoracoplasties he had had one operation fatality. He preferred the one-stage to the two-stage operation unless the patient was very weak, and he supplemented local with general anæsthesia, using only enough chloroform to keep the patient asleep. He used novocaine for local anæsthesia, and he had found that the injection of absolute alcohol into the nerves supplying the field of operation did much to relieve pain and prevent shock. With this system of poly-anæsthesia the patient suffered little, but it was advisable to supplement it for some time after the operation with omnopon which relieved the cough. He discussed the various methods by which band-like pleural adhesions could be divided, describing in some detail the operation with a tenotome under X ray guidance. The tenotome was used in such a way as to cut the adhesion with a sawing movement, and in one case he had found the adhesion to be so loosely slung between its two fixed points that its division was impracticable. He insisted on the resection of ribs in thoracoplasty being as radical as possible—the ribs from the first to the tenth inclusive being resected. He considered Sauerbruch's incision to be the best, and in children he recommended an axillary incision.

Resumed Discussion.

At the evening session, with Mr. CYRIL NITCH, President of the Section of Surgery, in the chair, the discussion was resumed.

Dr. S. VERE PEARSON expressed the opinion that in the choice of cases for thoracoplasty the indications ought to be weighed with even greater care than in the case of artificial pneumothorax. All the evidence for and against a thoracoplasty should be carefully weighed, and the decision should be finally come to only after such a comprehensive review and not on the strength of one or two signs. And in coming to a decision the physician should bear in mind the prognosis if no operation was attempted. The chances of an operation being successful might be poor, but was the outlook better or worse without an operation? He paid a sincere tribute to that great surgeon-physician, the late Prof. Saugman, and in his review of the various methods of dealing with pleural adhesions he argued that cauterisation under thoracoscopic control was a more scientific procedure than groping about with a tenotome under X ray control. He had explored the pleural cavity with a thoracoscope on nine occasions, and in two cases he had achieved considerable success in the cauterisation of adhesions according to the method of Jacobæus. He foresaw that this procedure, which he did not consider to be very technically difficult, would enjoy increasing popularity, and he discussed the methods most suitable for the prevention of surgical emphysema after puncture of the chest wall.

Mr. J. E. H. ROBERTS gave an account of a tour he had recently made of the Scandinavian countries, where he had found that the thoracoplastic operation most favoured was that in which extensive resection was practised, the ribs being resected not only to their angles, but as close to the transverse processes as possible. He emphasised the wisdom of judging the value of this operation by statistics embracing a large number of cases, and he insisted that a meticulous scrutiny of the state of the healthier lung might be carried too far, slight disease in this lung not being necessarily a contra-indication. In this connexion he had found standards vary in Scandinavia; Dr. Gravesen, of Denmark, took greater risks in this respect than did Dr. Key, of Sweden; while Prof. Bull, of Christiania, was still more exacting in the standard he set for the healthier lung. Personally, he was convinced that in some cases disease in the healthier lung might show improvement after a thoracoplasty on the opposite side. With regard to the anæsthetic used, he noted that the general tendency was to prefer general to local anæsthesia, and he had heard of several cases of serious novocaine poisoning in Sweden. Though the Scandinavian surgeons were, on the whole, practising the same technique, Prof. Bull was alone in his advocacy of apicolysis in association with thoracoplasty. Mr. Roberts insisted that after-treatment was quite as important as the operation itself.

Dr. L. S. T. BURRELL deplored the fact that this country had been a laggard in the matter of lung collapse treatment, suggesting that a Mr. Carter was needed to dig and delve for talent in this field. He pointed out that phrenicotomy did not permanently paralyse the diaphragm, and he was not wholly in agreement with Dr. Pearson as to the simplicity of thoracoplasty and cauterisation and the frequency with which cases suitable for this treatment occurred. He stressed the fact that thoracoplasty was not a reversible procedure like an artificial pneumothorax, and he referred to numerous cases of artificial pneumothorax in which, on account of extension of the disease in the healthier lung, he had had to discontinue the injections of gas. When he had done so, the disease in the healthier lung had often become

quiescent again. Such a retreat was impossible once a thoracoplasty had been performed.

Mr. TUDOR EDWARDS described the technique of cauterisation of adhesions, and referred to observations on the blood pressure during local and general anæsthesia. He was in favour of the latter—i.e., gas and oxygen. Among the ten cases in which he had performed thoracoplasty there had been one death—on the third day after the operation. Whether it was due to embolism or heart failure he could not say.

Mr. C. F. CUTHBERT described a pilgrimage he had recently made to Vejlefjord Sanatorium in Denmark and, though speaking as a surgeon, he emphasised the importance of the part played by the radiologist in the selection of suitable cases for thoracoplasty.

Summing up the salient features of the debate, Mr. NITCH commented on the unanimity with which the speakers had insisted that, before a thoracoplasty was attempted, treatment by artificial pneumothorax should have been given a fair trial. Another matter in which opinions seemed to be unanimous was that of the extent of a thoracoplasty; if it was to be undertaken it must be as radical as possible. The first rib must be resected as well as the second to the tenth or eleventh, and resection must be performed as close to the spine as possible.

Reply.

Prof. BULL, replying, traced the evolution of Norwegian medical science in relation to the outer world during the last century and a half. For about a century Norway had largely sought inspiration from England in this field, but during the past 50 years Norway had turned to Germany for much of her medical science. He suggested that the present movement in Norway towards a closer scientific union with England was not in the nature of rushing to the aid of the victors, but a natural reversion to an old and well-tried love, and he hoped that British scientists visiting him in Christiania would find their reception as cordial as his had been in London on the present occasion.

SECTION OF PATHOLOGY.

A MEETING of this section was held on Nov. 20th, Prof. J. C. G. LEDINGHAM, F.R.S., the President, being in the chair.

Evolution and Disease.

Dr. FRANCIS NOPCSA read a paper on what he has termed "arrostic" changes in evolution (ἀρρωστία =sickliness). According to the author's definition, arrostic changes were such that when they occurred in an individual they must be considered as symptoms of some chronic or acute disease, but when they affected a phylum they did not seem to be harmful. Speaking broadly, the arrostic change in a phylum might be termed its chronic disease. The first case of "arrosty" quoted was the gigantic growth of some dinosaurs—e.g., the diplodocus. In these animals gigantic growth was associated with enormous development of the hypophyseal fossa and persistence of cartilaginous epiphyses of the limb bones, although the vertebræ were well ossified and showed dense structure. The author considered that these evolutionary changes were comparable to those which occurred in infantile gigantism in man. In this disease it was especially the closing of the epiphyses of the limb bones which was retarded while the hypophysis cerebri was greatly enlarged. An enlargement of the hypophysis was also seen in some fossil reptiles (dinocephalia). Here it was associated, not with gigantism and persistence of the cartilaginous epiphyses of the limb bones, but with tremendous thickening of the skull bones. Those covering the brain-case attained a thickness of more than six inches and their surface was very rough, showing that the thickening was due to periosteal changes. In both dinosaurs and dinocephalians the enlargement of the hypophysis cerebri was accompanied by a change of food which was clearly indicated by the form of the teeth. Since a change of the food of an animal might quite well affect its supply of vitamins, and since the vitamin supply would almost certainly affect the function of the ductless glands, it was possible that in both cases the change in the vitamin supply was the cause of their differing osteological changes.

The second arrostic change concerned changes observable in lung-breathing vertebrates not yet fully adapted to life in water. In those groups of reptiles which were ancestral to ichthyosaurians, plesiosaurians, and mosasaurians, and in the ancestors of whales there occurred a decided osteosclerosis and a remarkable periosteal thickening of the ribs. This vanished when the descendants of these groups became fully adapted to marine life. In the latter stage all these animals had huge well-developed lungs enclosed in a pleural cavity, and capable of very strong dilatation, and frequently also there existed retia mirabilia near the ribs and vertebræ. Considering that among other factors repeated stoppages of the air-supply could affect the bone marrow to such an extent that giant cells got into the blood, and considering further that many other factors could produce hyperplasia of the marrow followed by aplasia (e.g., benzol injections) the author felt induced to compare the osteosclerosis and pachyostosis of incompletely adapted marine vertebrates to those bone changes that accompanied leukæmia, a disease which was produced by hyperplasia and subsequent aplasia of the bone marrow. In contrast to human pathology, where leukæmia invariably led to death, the similar process in non-adapted marine vertebrates apparently healed in the history of their phylum. The healing might be due to the function of the large lungs in providing the necessary supply of air and the function of the retia mirabilia in preventing a hyperæmia of the marrow. In the well-adapted marine air-breathing vertebrates it was found that the ribs, instead of being thickened and osteosclerotic, were of normal thickness and of a highly spongy nature. The structure of the limb bones was also spongy, but there was no medullary cavity. These differences suggested that the periostitic thickening found in the ancestors of these groups disappeared, and that the bone marrow redeveloped in their descendants. Instead of redeveloping, however, in the medullary cavity (which in the meantime had been filled with bone), the marrow seemed to have developed equally in all those bone lacunæ which had persisted during the osteosclerotic phase.

Dr. Nopcsa pointed out that sea-cows were the only animals which seemed to form an exception to these conclusions. These animals were highly adapted to marine life, had well-developed organs for swimming, large lungs, and strongly developed retia mirabilia, but they had retained the pachyostosis and osteosclerosis. In some genera, as in the Polar rhyntina, the ribs showed an extraordinary thickening, and in other genera of this group this malformation extended even to the skull bones. An explanation of this exception could be found in their diet, for alone of all the marine air-breathing vertebrates the sea-cows feed on algæ. All algæ, and especially the circumpolar brown algæ, contained a high percentage of iodine. Experiments on dogs had shown that the amount of iodine in the thyroid gland increased if the animal was fed on an exclusively vegetable diet. In cases of athyroidism, thyroid extract, apart from its other activities, accelerated the formation of bony tissues. It was possible, therefore, that the peculiar diet of the sea-cows might well have an effect on the thyroid organ and might explain the persistence of the osteosclerosis. The author considered that besides the gigantism of dinosaurs and the osteosclerosis of the primitive air-breathing aquatic vertebrates, it was probable that the formation of horns and antlers would come under the heading of "arrostic changes," but in this connexion further study was required, although many characters could be discerned which associated these structures with pathological neoplasms. Some of these have been indicated in Dr. Nopcsa's book, "Die Familien der Reptilien" (Berlin, 1923).

Dr. OLIVER HEATH read a paper on the

Meaning of Fever.

His thesis was based on three main contentions—namely, (1) that the exciting cause of fever is the using up of antibody by the bacteria; (2) that the purpose of the change, indicated by the systemic symptoms of malaise and anorexia, as also of the specific immunity response, is directed towards the economy of the body energy, and (3) (the most important) that the purpose of the rise of temperature is to accelerate the production of antibody, either normal or specific as the case may be.

Taking typhoid as an example, Dr. Heath conducted experiments upon himself, by submitting himself to injections of known and carefully calculated doses of typhoid vaccine. The results of such experiments enabled him to draw certain conclusions, which he grouped under two separate headings: (1) the cause of a fever, and (2) the purpose of a fever. In his opinion, the direct cause of a fever, in a normal subject, was the using up of antibody, while bacteria played a secondary rôle. The mere presence of bacteria in the body—e.g., in a boil—did not necessarily cause fever, it was not until the bacteria came into contact with the blood fluids circulating through the lesion, or with the blood-stream, that fever occurred. It was known to laboratory workers that if, say, staphylococci were mixed with normal serum, or typhoid bacilli with a typhoid immune serum, the bacteria would absorb or render inert the antibody previously present in the serum. That effect could also be shown in vivo, for an experiment upon himself showed that the subcutaneous injection of 2000 mills. caused fever lasting 20 hours, with a hundredfold decrease of bactericidal power in the blood. We have next, he said, to expand this idea to cover a fever such as that of the first week of typhoid before the appearance of specific immunity. Further experiments showed that a series of vaccine doses increasing daily from 50 to 600 mills. caused an intermittent fever slowly rising to the seventh day. On the fifth and sixth days fever was continuous, and the bactericidal power, twice tested, showed a decrease. This, he believed, represented the conditions in the first week of typhoid with a continued supernormal temperature and a continued subnormal bactericidal titre. The fever reaction was therefore a manifestation of reparative activity on the part of the blood tissue, damaged by depletion of antibody.

Accepting the depletion of antibody as the cause of fever, a problem arose in connexion with the immune subject: how did fever continue after the immunity had been raised considerably above normal? Experiment showed that where ten doses of vaccine were given, a definite level of immunity was established, which remained the same for two months, but was falling at six months, so that the old normal level was replaced by what might be called the new "immune normal," and this, barring disturbances, remained stationary for some time. Fever occurred only after doses, and with it there was a dip in the antibody content of the blood. Therefore some depression in the blood titre below this new "normal" was an essential factor in the causation of fever. In applying these observations to a case of typhoid fever, one could picture on one side the patient's reactive forces working to establish this new "immune normal," and on the other side the bacilli using up antibody at a rate which prevented its attainment. Just such a position of balances was very strongly suggested by the evidence of titre demonstrable during the fastigial period of typhoid, and records covering the defervescence very commonly showed results affording support to this view. If this view were accepted, it was reasonable to suppose that the cause of fever in the fastigium was still the using up of antibody.

Dr. Heath said that a consideration of the purpose of fever resolved itself into a study of the several events of the reaction, which he dealt with in some detail. Briefly summarised, the purpose of fever is to repair the damage caused to the blood equilibrium by depletion of antibody. This damage excited reactive impulses which (1) controlled local inflammation and rate of absorption; (2) inhibited normal activities and freed energy for defence; (3) in place of the normal defence process of local inflammation and a functioning body, this reactive impulse started two (abnormal) defence processes, which formed fresh antibody, and at the same time raised the temperature to accelerate its formation. Lastly, where specific immunity was exhibited, this enabled the patient to use his energy in greater comfort and in more economical fashion. If this thesis were accepted, the following practical conclusions should be drawn. (1) Vaccine during the fastigium of typhoid would only hinder the patient, while (2) vaccine during the first week of a mild typhoid would probably increase the immunity response; (3) the exhibition of antipyretic drugs should be put under the head of malpraxis; (4) the severity of the systemic symptoms of malaise and anorexia increased with the approach of the blood titre to zero, indicating rest of the whole body and abstinence from food; and finally, (5) it was possible, on clinical grounds alone, by observing the systemic symptoms, to form an approximate estimation of the state of the patient's immunity.

Papers were also read by Dr. E. E. ATKIN on Cultural Characteristics of the Different Types of Meningococci, and by Dr. J. A. ARKWRIGHT on the Characteristics of Certain Cultures Sensitive to Bacteriophage.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.

THE NERVOUS CHILD.

A MEETING of this Society was held in the rooms of the Medical Society of London on Nov. 29th under the presidency of Mr. R. C. ELMSLIE, F.R.C.S.

Dr. H. CRICHTON MILLER, in introducing a discussion on the subject of the nervous child from the psychological standpoint, said those who were dealing with education in any shape must never let go of the fundamental conception that they were supervising a child who began life as an extra-social animal, and who had a long, tedious, and difficult pilgrimage from the outskirts of society in his efforts to reach its centre; and in that pilgrimage the child was called upon to make numerous new adjustments. In doing this he often fell behind or was lost. Our social life had become so complex and artificial that it was difficult to remember the complete simplicity of primitive life or to realise the actual fundamentals in the development of childhood and adolescence. Much of school life was also artificial and complex; whether it was necessarily so he would not stay to argue. Those concerned with the child had to watch it in its various phases, see how to get the most for it, and judge whether it was falling back. Many children entered the world "problem-children" from the very beginning, and no sort of educational environment would ensure a smooth pathway for them; they were mal-equipped for life's struggle. This was such a wide subject that he passed on to consider the case of the child with the normal equipment, who, given a fair environment and a decent chance, would develop into a psychologically and physically mature adult. Medical men in his own specialty were continually encountering nervous wrecks in adult life, whose wreckage could be traced back to a time in their development when they began to go off the lines. It was necessary to face the hideous fact that the teacher and the school would be beaten every time by the parent and the home; the former had not the last word, they could only do their best, and leave the rest. The child came to school with some of his development already achieved, but sometimes this was very little. At 7 or 8 years some of the shackles of the maternal magnetism ought to have been cast off and the child should be commencing to move with some independ-

ence, ready to get away from the fulsome admiration and protection of its mother. But some were far from doing so at that age, and that might be urged as a reason for not sending children to a boarding school so young. If the maternal protection were cut off too young a breakdown of some sort was to be expected; he showed he was unable to be independent of many different morbid reactions. A boy entering a public school at the age of 13 or 14 would be expected to have some independence, some aspiration after growth and development, and a readiness to take the consequences of his own actions. But, again and again, that was not so, the emotional development had been retarded. Inquiry showed, very often, that the father, instead of being a source of inspiration, had been a source of terror, and that the mother held on tenaciously to her emotional domination of the child. If at 14 a boy was still "mother's darling," it was useless to expect from him anything like a normal reaction to his social environment. This latter was largely a question of feelings of inferiority and of superiority. Children were naturally anxious to obtain a status in the eyes of their associates. Some tried to do it by "showing off," some by "bossing" and by violence, some by getting ill, some by becoming criminals. In many neuroses of children the dynamic motive was to acquire status in their social group, the school, and the root of this motive was a keen sense of inferiority, due to the fact that the world into which he had been projected was, largely, an adult world. The child who made good adjustments accepted this inferiority and succeeded. Those who did not sought to compensate by seeking a superiority by morbid means. The conflict between the attempt to assume superiority and the consciousness of inferiority produced the "nervous temperament."

With regard to the basis of sex, there was no question that the sexual life of the child was of enormous importance. He referred to four aspects of it. The first was enuresis nocturna, which he regarded as one of the most interesting symptoms in the whole of medicine. He would not encourage the use of electrical methods nor the passage of sounds, but the physical element depended on certain endocrine dysquilibria, probably associated with the pituitary and the thyroid. Many cases were cured by thyroid treatment alone. A second factor of great importance was auto-suggestion. The child who did this tended to be terrified at the prospect of a repetition, and this fear sufficed to perpetuate the act. A third factor was hetero-suggestion, the preparations at night with the waterproof sheeting and the other ritual connected with it. These children brought with them the symbolism of the cradle; they were victims of mother-traction. Scolding convinced the child that he was in the midst of a social scheme for which he had no use and which was unjust to him, and he therefore almost invariably turned to acts of revenge. With regard to masturbation, it was most important to keep the emotional atmosphere away from the whole subject. The solemn and sacred attitude of headmasters, chaplains, and others towards these delinquents was quite wrong, and it was very seldom their methods did good. The habit must be checked, but great harm was done to the child's character. It must also be remembered that every boy and girl passed through a phase of potential homo-sexuality; and when active homo-sexuality was found in a school child it merely meant that a smouldering fire had been fanned into a flame. He did not say schools should continue to be exposed to such. The adult pervert in this respect was quite a different proposition. Boys and girls so afflicted should be treated with a certain openness and generosity, less with the emotional lever, and more with that of psychology and biology.

Dr. H. C. CAMERON dealt with the subject from the physical side. The physical symptoms which commonly accompanied nervous exhaustion, he said, were most strikingly noted in the muscular system; there was a marked amyotonia of all the skeletal muscles, as shown in the lax, stooping stance. (He illustrated it by lantern slides.) It was especially manifested in the antigravity muscles. Standing with feet well apart, the child so balanced itself that as little muscular effort was expended as possible. This caused definite lordosis, and the abdomen was unduly prominent, with a compensatory curve in the cervical region. The chest became narrow, and the ribs descended steeply. The skeletal muscles also showed a loss of vasomotor tone, and flushing and paling were readily produced. The child's appearance evoked parental alarm, yet commonly there was no true anæmia present; it was rather a fault of blood distribution. Syncopal attacks, faintness or sickness in train or bus, palpitation, and a poor exercise tolerance were common complaints in these children. Functional murmurs and cardiac irregularities led to the fear of valvular disease, and he believed this to be the origin of the "effort syndrome" of Lewis. This type of child also had postural albuminuria. He did not regard the lordosis as the primary cause of the renal congestion producing the albuminuria, but thought both were due to failure of vasomotor tone. When this faulty posture had been maintained for long there might be detected increasing evidence of enteroptosis. Attacks of abdominal pain might synchronise with the times of emotional excitement, so that appendicitis might be suspected. These children also often showed a very irregular temperature curve; excitement raised the skin temperature perhaps a couple of degrees, and when the child was cold and exhausted it was subnormal. Probably this was due to variations in the circulation through the surface and deep areas of the body. These "nervy" subjects were also very prone to catch cold, as their vasomotor defences against chill were but ill developed. A very inclusive array of terms were applicable to these children. They were said to be timid, lacking in self-confidence, dreamy, inattentive, unmethodical, unduly sensitive, tearful, sleepless, suffered from night-terrors, refused food, had incontinence of urine, masturbated, had headache, habit spasm, and cyclical vomiting.

With regard to the treatment of the underlying exhaustion, it was very important to extirpate any source of chronic infection as a preliminary. On many cases chronic infection of the tonsils was acting deleteriously. The teeth also should receive careful attention. Often the child's condition was best attacked by carefully devised gymnastic exercises, drill, dancing, and massage. The exercises and the drill should be carried out in a warm room, the children being practically naked. This also had a good effect on the mind; on the soldier his drill conduced to mental smartness and celerity. Massage had great immediate effects on muscle tone and development. There was also need for systematic rest, especially of the antigravity muscles; the prone position, resting on the elbows, was probably best. Some form of skin stimulation seemed desirable. He favoured a hot bath, followed by short immersion in a cold bath, then a return for a short time to the hot bath, the aim being to get the stimulant effect without any considerable abstraction of heat. The final act should be vigorous rubbing with a rough towel. In many of these children a want of tolerance of fat could be detected. Attempts to feed them up by generous servings of milk, cream, and cod-liver oil often resulted only in vomiting or the passage of fatty stools. But the need and tolerance for sugar was high. Care should be taken not to dilate on the child's defects in his presence, as he was morbidly sensitive to all such influences. It was possible that the primary cause of the condition in these children was a deficiency of adrenal secretion. But he could not record with certainty any success from organotherapy.

Discussion.

The PRESIDENT referred to the difficulty of producing an alert posture in children of the type under discussion. A physiologist recently told him that the area presiding over postural tonus was in some of the basal nuclei of the brain. His own view

was that this postural tonus was not, in human beings, a natural thing, as one would expect it to be if the basal ganglia were the seat. He believed children learned posture with great difficulty, and this would place the centre in the higher cortex of the brain.

Dr. C. E. SHELLY (Haileybury) agreed that these children were largely the product of the neglect and discouragement of the child by the father and the over-fastidious endearment of the mother. He also thought the nutritional environment of the child, especially in the matter of white instead of wholemeal bread and pappy foods generally was an important factor in causing the condition. Fortunately, in some schools, there was a reversion to the old stone-milled flour; 800 boys at Horsham were now given it.

Dr. E. H. T. NASH (school medical officer, Heston and Isleworth) referred to the difficulty in dealing with enuresis in school life, which was made more so by the absurd punishments sometimes inflicted, such as compelling the boy to carry his soiled clothes through the school and hang them up to dry. Another difficult type to deal with was that of the child who always had cold hands and feet, and he asked as to the ultimate history of these cases. Another type was the child with phobias; treatment of these he had found very satisfactory. These children, especially if the victims of mother-traction, were liable to become pests to themselves and to everybody about them, and every care should be taken to avoid speaking about their ailments in their presence.

Dr. L. FAIRFIELD (Public Health Department, L.C.C.) spoke of the type of child in regard to whom it was wrong and cruel to compel indulgence in gymnastics, as it needed mental gymnastics before attacking the clinical side. In the amyotonia subject it was the inferiority complex which was the dominant factor, and such a child was in great need of mental sustenance for getting rid of the inferiority idea. The jealousy complex should also be kept in mind, for it was often found to be a very definite factor.

Dr. L. R. LEMPRIERE (Haileybury) said that in 2400 boys in his school he had seen 154 cases of the kind under discussion. When asked whether the nervous boy was fit for public-school life, his reply was that it was the best place for him, just as, in many cases, the home was the worst. Only two of the 154 could not stay at school; they had very acute homesickness. His statistics did not show that this type of child was on the increase; 68 of the 154 cases turned out to be good athletes. In school life the imitative faculty was important. He did not "fuss" these boys, and he found that physical training was of great value, but he insisted on their resting two days per week. For enuresis belladonna was the only drug he had found to be effective.

The openers briefly replied, Dr. MILLER expressing his strong objection to the giving of belladonna, which was not only a poison, but a demoralising one.

Dr. LEMPRIERE was elected the new President of the Society.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

A MEETING was held at the rooms of the Medical Society of London on Nov. 22nd, Lieut.-Colonel E. GOODALL, the President, occupying the chair.

The PRESIDENT referred to the sense of loss which the Association had sustained in the death of Dr. W. Ford Robertson.

The Psycho-Neurological Clinic at Utrecht.

Prof. D. C. WINCKLER gave an address, supported by a series of slides, on Psychiatrical and Neurological Teaching at the Dutch Universities, especially at the University of Utrecht. He said the organisation of the study of neurology and psychiatry at the Universities in Holland had been a very difficult matter. The Utrecht Society of Psychiatry was established in 1871, and it organised many petitions urging proper psychiatric instruction. In 1877 it succeeded in having an enactment passed which was entitled "A Law on Higher Education." At this time there were no recognised examinations in psychiatry, and medical men in asylums were recruited from among military medical men who had returned from the colonies. Donders strongly favoured the efficient teaching of psychiatry, and the lecturer's eyes were specially opened to the need by Dr. Leidesdorff, professor of psychiatry in Vienna. In this country it was the exception to have whole-time professors, but in Holland it was a stipulation that professors should not have private practice, a wise provision in some ways, but it did not ensure that the professor was necessarily the best man on the subject. In Holland, the paying patient constituted a great financial help to the teaching schemes. The 1877 law permitted the establishment of the Amsterdam Municipal University, the Faculty of Medicine of which operated in that city.

In 1885 Prof. Winckler was nominated a university lecturer on psychiatry and neurology, and money was set aside for research. The Society of Psychiatry held a number of discussions on the need for the teaching of neurology and psychiatry by one professor. The chief opposition to this idea came from practising specialists. He showed how intimate the two subjects were, and that to place the tuition in separate hands must result in overlapping. He contended that even a skilled neurologist was not necessarily a psychiatrist; moreover, psychiatry based only on psychology had proved dangerous, as witness Weinroth's contention, in 1882, that "All alienation reposes on sin." In many asylums the clergyman was accepted as the leader, the physician being relegated to a secondary place. Later the Society took the ampler title of "The Society of Psychiatry and Neurology," and the two departments were successfully fused. At the Utrecht University students could not be trained as specialists before passing their final examination.

It was now possible, as a result of various controversies, to retain specialism within certain limits, but he was anxious as to the future. A project was successfully started for building a clinic of psychiatry and neurology in Utrecht, but as it was to cost £50,000 some hesitation was felt, and the authorities argued that the best place at which to teach psychiatry was the asylum. This, however, was opposed by the Society, and by the Faculty of Medicine at the University, chiefly on the ground that cases of the various transient psychoses, hysteria, neurasthenia, and hypochondria, &c., were seldom seen in asylums. Matters remained stationary from 1885 to 1891, but in 1892 everything seemed in readiness for commencing the new building. However, a small mistake on the part of the architect led to a controversy between the State and the municipality, and there was a further delay.

Dr. Winckler paid a tribute to the energy and perseverance of Dr. Weilbronner, which culminated in the establishment of a new clinic. He did not survive beyond 1914, his death being sudden; and Dr. Winckler succeeded him, becoming director of the newly-built clinic of psychiatry and neurology. It had to fill a double rôle: to secure the best possible care to nervous patients, and give them the best chance of recovery; secondly, to give teaching in psychiatry and neurology. Here all patients were nursed on the ground floor; the scientific installations, laboratories for photography, Rontgen rays, &c., on the first floor, and the higher floors were used by house doctors, administrative staff, nurses, &c. The lecture-room was placed between the wards on the ground floor. He described the equipment and the plan of working by the aid of some excellent photographs. The dispensary was visited by 1200 new patients per annum; and the lecture-room had accommodation for 145 students. In the library department a special feature was the scheme for filing ready for immediate use all the photographs, micro-photographs, skiagrams, &c., taken; and for each subject there was a definite series of slides. He showed that there exists a happy spirit of coöperation with the justiciary as well as with the other departments of the University. The

average residence in the clinic was three weeks, but some patients stayed there much longer.

The PRESIDENT expressed the Association's gratitude to Prof. Winckler for having come so far to show the high level on which psychiatry stood in Holland.

Sir FREDERICK MOTT said it had been his privilege to see the fine institution which Prof. Winckler directs, and on his recommendation, other English alienists visited it, and came back with a fund of instruction. When William of Orange rode into Leiden, after the siege, he asked the burghers whether they would have a university or a remission of taxation, and they chose a university. Sir Frederick Mott wondered in how many English towns such a choice would be made. In conclusion, he referred to the many-portal system of entry to the medical profession in this country, and commented on the advantages of a single State examination.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

A MEETING of this Society was held in Sheffield on Nov. 16th. Prof. M. H. PHILLIPS was in the chair.

Exhibition of Cases and Specimens.

Dr. J. BRIDE (Manchester) showed a tumour simulating complete ulcerated prolapsus uteri. He removed it from a 2-para, pregnant four months. It was situated in the interval between right labium majus and minus, and resembled an ulcerated complete prolapse. It had been noticed for 12 months and was steadily getting bigger and was removed without affecting the pregnancy. Microscopically it was a fibroma.

The PRESIDENT showed specimens of (1) adenomyoma of rudimentary uterine cornu; and (2) salpingo-cæcal fistula. The first specimen was removed from 7-para aged 44, who had had menstrual pain for the last seven years and recently pain not associated with menstruation. A swelling the size of a golf ball was attached to the left side of the supravaginal cervix, diagnosed as adenomyoma of Gaertner's duct. At operation it was found to be rudimentary, left cornu of uterus attached to supravaginal cervix, and also to pelvic wall. A section of the cornu showed spaces filled with dark blood, lined by columnar or cubical epithelium, embedded in "cytogenous mantle" similar to uterine endometrium. The second specimen was removed from 3-para aged 32 years. Last child was born three years ago, followed by severe abdominal pain for two weeks. Patient was admitted into hospital in November, 1922, suffering from subacute attack of bilateral salpingo-oöphoritis. Five weeks later she was seen with fixed tender swelling to the right of the uterus which was thought to contain pus. Four weeks afterwards swelling had disappeared and the patient felt much better. She was readmitted August, 1923, for dysmenorrhœa and backache. A retroverted adherent uterus and slight enlargement of the appendages were found. The right tube was firmly fixed to the cæcum, and the thickened area of the cæcum was removed with the tube. The end of the tube was found prolapsed into the cavity of the cæcum, the ostium being patent and well away from the opening of the vermiform appendix. The condition was thought to be the result of rupture of the peritubal pyocele into the cæcum.—Dr. BRIDE recalled a similar case in which an ectopic pregnancy had ruptured into the cæcum.—The PRESIDENT said that originally this case had been diagnosed as an ectopic cyst by the house surgeon.

Dr. BRIDE gave an account of two consecutive pregnancies with central placenta prævia and Cæsarean section. A 2-para, aged 34, was seen on Nov. 20th, 1922, three months pregnant, with history of Cæsarean section, by Dr. Fothergill, whom the speaker had assisted. The living child then delivered was still alive and healthy. On April 21st, 1923, the patient was admitted into hospital eight and a half months pregnant; she had severe bleeding with central placenta prævia. Dr. Bride decided to do Cæsarean section, delivered a living child, and at the same time sterilised the woman by removing portions of both Fallopian tubes. The child died of convulsions on the eleventh day. Nothing was found to account for the placenta prævia habit.—Dr. J. E. STACEY said that it was very rare to have recurring central placenta prævia.—Dr. W. W. KING asked to what extent the cervix was dilated and criticised the second Cæsarean section, and also the sterilisation of the patient.—Dr. FLETCHER SHAW said that one did not expect a Cæsarean scar to stand difficult deliveries in future pregnancies.—Dr. BRIDE said that the cervix was only slightly dilated; he did not consider possible rupture of the old scar. At operation the old scar could hardly be seen.

Dr. H. CLIFFORD (Manchester) described a case of full-time ectopic gestation. Mrs. F. was admitted to hospital on Nov. 30th, 1922, with a history of amenorrhœa since February, 1922. Fœtal movements were active till two days before admission. The fœtus appeared to be full-term, fœtal limbs were rather prominent, the head high up and in R.O.P. position. No fœtal heart sounds were heard nor movement felt. The cervix was protruding from vagina; presenting part could not be definitely felt. Radiographs gave no assistance; the temperature was slightly raised; the cervix was cleansed and replaced and supported by a ring pessary. Labour did not come on and the patient was discharged at her own request on Jan. 5th, 1923. She was readmitted on the 26th when the fœtus was in the same position, and the temperature was slightly higher. Bougies were inserted into the cervix on two occasions, but could only be pushed 3½ inches. Temp. 102° F. and pulse 120. On Jan. 29th and Feb. 4th the patient had 4-minim doses of Dr. Jenkins's stock residual vaccine.[1] On Feb. 14th Dr. Clifford opened the abdomen and found a full-term macerated fœtus lying in a sac with placenta almost entirely attached to outer abdominal wall. This was stripped off without bleeding; the membranes were not removed and the cavity was drained and irrigated by Carrel Dakin's method for three weeks. The cavity rapidly became smaller, and six weeks after operation there was a sinus 1¼ inches long. Inquiries afterwards revealed the fact that in March, 1922, the patient had severe abdominal pain with vomiting followed a little later by hæmorrhage lasting five days. Afterwards she had considerable abdominal pain, and in May consulted a surgeon who thought she had had appendicitis. Dr. Clifford considered that the condition was very difficult to diagnose.—Dr. FLETCHER SHAW and Dr. D. DOUGAL agreed with him.—The PRESIDENT also agreed, but pointed out that a dead fœtus is not retained long in utero.—In reply, Dr. CLIFFORD said that it was sometimes very difficult to diagnose fœtal death.

Dr. S. B. HERD (Liverpool) described two cases of encephalitis lethargica associated with pregnancy: (1) Primipara aged 24. No history of previous illness. Pregnancy normal up to thirty-sixth week. The patient then had headaches, albuminuria, and slight œdema of the ankles. She had treatment and showed signs of temporary improvement. A week later she had severe headaches and a fit. Admitted to hospital: Blood pressure, 130 mm. of Hg; albuminuria, 3 g. per litre. No uterine contractions. The patient had six fits in six hours following admission—apparently typical eclamptic fits. Next day a living child was delivered. Later in the day rhythmic clonic contractions of jaw muscles commenced. The temperature was slightly raised. The patient was restless and confused, and at the end of five days, as she was becoming worse, was transferred to another hospital, where she died on the twentieth day after delivery. She had nystagmus, ptosis of upper eyelid, and weakness of facial muscles. Post-mortem diagnosis of encephalitis lethargica was corroborated, and no evidence of toxæmia was found. The second

[1] Brit. Med. Jour., April 15th, 1922.

case was that of a primipara aged 28. Healthy up to the thirty-fifth week of pregnancy. On admission the patient was restless and excited, and there were incoördinated clonic movements of head and limbs present during sleep. Reflexes normal. Albuminuria, 2 g. per litre. Chorea gravidarum was diagnosed and treated with parathyroid extract, calcium lactate, and sedatives. On fourth day after admission the patient was delivered of a still-born child. The temperature rose to between 100° to 102° F. Diplopia noticed on following day. Delusions, restlessness; became worse, and was transferred. Diagnosis of myoclonic lethargica encephalitis was made. The patient was slowly recovering—four months later—but complete recovery was not expected.

Dr. J. CHISHOLM recalled one case in a 2-para with marked clonic movements of abdominal walls with symptoms of internal obstruction. Cæsarean section was performed; no obstruction was found and movements continued afterwards. The patient was dull and apathetic, but recovered. The child also had lethargic encephalitis. Dr. Chisholm mentioned another case in a five and a half months' pregnancy diagnosed as pernicious vomiting at first. Though labour was induced, the patient died. She had nystagmus also.

Dr. FLETCHER SHAW read a paper on the

Advantages and Disadvantages of Supravaginal Hysterectomy and Panhysterectomy.

He said that some gynæcologists believed panhysterectomy should be done whenever the uterus had to be removed, while others believed that supravaginal hysterectomy was the better operation for many cases, though they would probably always do panhysterectomy if the cervix was badly lacerated. In a period of 18 months he had had three patients in whom carcinoma of the cervix occurred after supravaginal hysterectomy, and his object in bringing the subject before the Society was to see if other gynæcologists had had any similar cases. Although these three cases were seen in a period of 18 months, they were the only ones he had ever had, and so far as he knew none of his colleagues at St. Mary's Hospital had had a single case, so that the occurrence after supravaginal hysterectomy was very rare and it was probably merely a coincidence that he should get these three in so short a period. If that proved to be the case he still thought there was a distinct use for supravaginal hysterectomy, as it was a much quicker operation and caused less shock to the patient and, moreover, did not entail the opening of the vagina, which, no matter how carefully cleaned, was potentially a septic passage. In a consecutive series of supravaginal hysterectomy and panhysterectomy he found the mortality higher after panhysterectomy, and in the investigation of the convalescence of a consecutive series of both types the patients after supravaginal hysterectomy had, on the whole, a smoother time than those in whom the complete operation had been done. He still thought supravaginal hysterectomy was useful in nulliparous women, but panhysterectomy should always be done where the cervix was badly lacerated or in any way diseased.

The PRESIDENT said that he did not remember seeing carcinoma of the cervix after subtotal hysterectomy, but he had removed cervices for discharge. He believed that panhysterectomy was the better operation in all cases.

Dr. W. W. KING showed a specimen of carcinoma of the cervix which he had removed. The patient had subtotal hysterectomy in 1919 for fibroids. In 1923 she had bleeding for three months, and the cervix was found carcinomatous. He recalled another case in a nullipara who in 1911 had gonorrhœa. In 1918 the patient had a pelvic abscess drained; in 1920 had subtotal hysterectomy for bleeding, and six to eight months later had ineradicable carcinoma of the cervix. He believed in total hysterectomy in multiparæ, and subtotal in nulliparæ.—Dr. BRIDE said that in a case of a nullipara, he had done a panhysterectomy and found an early carcinoma of the cervix.—Dr. CHISHOLM mentioned a case who had had a subtotal hysterectomy 25 years ago and who had bleeding for two months, and was found to have ineradicable carcinoma. She had had one child and one miscarriage.—Dr. CLIFFORD did not remember a case of carcinoma of the cervix occurring after subtotal hysterectomy in his practice. He said that it was so rare that it hardly affected the difference in the mortality rate between the operations of subtotal hysterectomy and panhysterectomy.

ULSTER MEDICAL SOCIETY.

A MEETING of this Society was held on Nov. 22nd, Prof. W. ST. C. SYMMERS, the President, being in the chair.

Mr. ANDREW FULLERTON read a paper entitled

Observations on Unilateral Diuresis.

He described a continuation of some observations on unilateral diuresis which he presented last year before the Congress of the American College of Surgeons, held at Boston. A small irritating calculus in the pelvis of the kidney, he said, may give rise to a unilateral diuresis so definite and striking as to confirm the most casual observer. The flow from the sound side may be correspondingly diminished, and the specimen so concentrated that a copious deposit of urates is rapidly precipitated. In tubercle of the kidney an exactly similar state of affairs is present in the early stages. A further example was furnished by unilateral pyelitis. In cases with little involvement of the parenchyma of the kidney the picture closely resembles that seen in stone in early tubercle. In stone and pyelitis a rapid return to the normal occurs when the cause has been removed. In calculus and in the early stages of tubercle the diuresis is what may be termed acute. When structural changes have occurred in the kidney the specific gravity is still diminished, but by degrees the flow of urine becomes less and less, until finally all the work falls on the sound kidney. The term chronic might be applied to the diuresis in these cases, but when the flow becomes diminished it is not strictly applicable. The specific gravity of the urine in the affected side was likely to be low in the following conditions: renal calculus, tuberculosis of the kidney, unilateral pyelitis, tumours of the kidney, congenital cystic kidney (when the process is more advanced on one side), hydatid cyst of the kidney, hydronephrosis, movable kidney, certain cases of renal pain, and in wounds of the kidney. Statistics were given of the results of examination in over 500 cases. Mr. Fullerton brought forward this subject to emphasise the value of a sign that might help in diagnosis when the surgeon was deprived of more accurate methods.

Dr. F. C. S. BRADBURY demonstrated a method of

Estimating Urea in Urine,

based upon the principle that if a gas is liberated within an apparatus of constant volume, the resulting increase of pressure is proportional to the amount of gas liberated. In this method the ordinary hypobromite reaction is utilised to liberate nitrogen from a fixed volume of urine, and is carried out in the usual manner by placing the urine in a small test-tube within a bottle containing the reagent, so that by tilting the bottle the urine and reagent can be mixed at will. The bottle is provided with a perforated rubber stopper into which is pressed the stem of a manometer such as forms part of a sphygmomanometer outfit of the aneroid pattern. The air space within the apparatus has a complex value, being the capacity of the empty bottle minus the amounts of caustic soda, bromine, and urine added; minus the volume of the glass composing the bromine tube and the urine tube; minus the volume of air displaced by the stopper of the bottle; plus the air space inside the manometer; plus the potential air space in the reagent due to its power of

dissolving nitrogen. It is thus not easy to standardise the apparatus so that it shall have a constant air space, but Dr. Bradbury finds that the air space is brought to a sufficiently constant value by adjusting the amount of caustic soda in accordance with the size of the bottle used. The reagent thus serves a double purpose—to liberate nitrogen from the urine, and to bring the air space within different pieces of apparatus to the same amount. To facilitate the use of the apparatus the urine tube is marked at a level corresponding to 5·0 c.cm., and the bottle is marked at a level corresponding to 177 c.cm. less than its total capacity. By choosing this particular value for the amount of caustic soda (in conjunction with a 2 c.cm. tube of bromine), and using 5 c.cm. of urine, the reading of the manometer in decimetres expresses the percentage of urea in the urine, the reading being taken as soon as the reaction is complete, without waiting for the apparatus to cool. A series of 73 estimations controlled by the urease method of urea determination showed the average error of the manometric method to be 3 per cent.

CORK UNIVERSITY SCIENTIFIC AND MEDICAL SOCIETY.

MEDICAL SECTION.

Exhibition of Cases and Specimens.

THE opening meeting of the session was held on Nov. 6th, with Prof. C. YELVERTON PEARSON in the chair.

Dr. M. CAGNEY showed a case of mitral stenosis with aortic incompetence and pericardial adhesions, which was remarkable for the almost negligible rheumatic history in comparison with the extensive cardiac damage. Prof. D. T. BARRY demonstrated pulse records of this case, which showed a pulsus alternans which was not appreciable by palpation of the radial pulse.

Dr. J. B. HORGAN described, with specimen and X ray photographs, a case of

Right-sided Hypopharyngeal Diverticulum

in a male aged 32. There was a history of dysphagia lasting over two years, with regurgitation half an hour after food, and marked inanition. A slight swelling was present at the right side of the neck, and the œsophagoscope passed readily into the pouch, and it was only by employing a small tube and using pressure that the instrument could be passed beyond the pouch into the œsophagus, which was normal. The patient was fed liberally by a Hill's feeding-tube for two days before operation, which was performed under general anæsthesia administered by laryngeal intubation, the incision being made from the hyoid bone to the right sterno-clavicular articulation in front of the right sterno-mastoid. The base of the sac was clamped and the sac removed, its opening being closed by three layers of chromic gut suture, and the wound packed with gauze round a drainage-tube. Recovery was uneventful, swallowing being quite well performed when the Hill's tube was removed nine days after operation.

Prof. PEARSON presented a case of

Pyometra Due to a Suppurating Fibro-myoma.

The interesting point about the case was that manual removal of the placenta had been performed on the patient a year before after a difficult labour, and at that time the obstetrician had noticed no intra-uterine fibroid. When the patient came under Prof. Pearson's care there was great uterine enlargement, with pyrexia. A few days later some two pints of pus containing *Staphylococcus aureus* were spontaneously evacuated from the uterus, and on examination the tumour was felt blocking the internal os, where it acted as a ball valve. Pan-hysterectomy was performed after douching the vagina and packing the vagina and cervix with gauze. Recovery was uneventful, though previous to operation the patient's condition had been very bad.

Dr. P. KIELY demonstrated two cases of successful use of

Radio-therapy for Rodent Ulcer.

In one of these cases, a large rodent ulcer involving the bridge of the nose, inner canthus of left eye, and both lids of the right eye, considerable improvement had taken place. He emphasised the need for patience, as even in apparently hopeless cases involving deeper structures the X rays would bring about marked improvement. Photographs were shown of the patients before and during treatment.

Dr. R. C. CUMMINS demonstrated a case of

Amœbic Liver Abscess,

with partial right-sided pyo-pneumothorax. The patient had been on active service in India, Egypt, and Mesopotamia, and had suffered from malaria, but had never suffered from any intestinal symptoms except occasional slight diarrhœa. There was thus no dysenteric history. Amœbæ were found in the copious sputum, along with various catarrhal organisms. The condition was treated with emetine bismuth iodine, 1 gr. daily, for ten days, with weekly injections of a vaccine prepared from the sputum. After an intermission of a week a further course of emetine was given and symptoms cleared up completely. The case was interesting in view of the report of investigations by the Medical Research Council in 1917 in which, after examining the fæces of 3000 apparently normal individuals, it was found that 10 per cent. were infected with *Entamœba histolytica*, and this in persons who had never left Great Britain. The importance of this possibility in explaining otherwise unaccountable attacks of recurrent diarrhœa was urged.

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Committee 43 cases were considered and £499 15*s.* voted to 34 applicants. The following is a summary of some of the cases relieved :—

L.R.C.S.I., aged 65, who practised in London and through paralysis has been unable to work regularly. One daughter is out of employment, the second one is married, and the youngest has a post of 30*s.* a week and is unable to help her father to any great extent. The Fund gave an emergency grant of £3 and voted at this meeting £18 in 12 instalments.

Widow, aged 81, and daughter, aged 55, of L.R.C.S. Edin. who practised in Birmingham and died in 1918. Their only source of income is derived from selling eggs and from the mother's Old Age Pension. The daughter reckons to get about 15*s.* from the sale of eggs. The bungalow is their own and unfortunately was partly burnt. The estimated damage was £18 and they were uninsured. This case was voted £9 in six instalments (to the mother) and £10 towards the damages through the fire (to the daughter).

Widow, aged 26, of M.B. who practised in Wales and died suddenly in May of this year. Applicant was left penniless. Her baby was not born until July. She tried to sell the panel, but the Workmen's Medical Committee claimed to elect whom they chose to fill the vacancy. Friends helped with the funeral expenses. Applicant's late husband had only been in practice for one year and was unable to make any provision. Voted £20 in two instalments.

Widow, aged 69, of M.R.C.S. Eng. who practised in Nottinghamshire and died in 1915. Applicant lives with her daughter who, owing to bad trade, finds it most difficult to provide for herself and her mother as the applicant has no means of her own. Voted £18 in 12 instalments.

Widow, aged 62, of L.R.C.P.I. who practised in Lancashire and also acted as a ship's surgeon and died in 1902. Since the death of her husband she has maintained herself by acting as a companion and up to two years ago had a permanent appointment, but owing to her health breaking down she is now only able to take temporary employment or do needlework. During the last twelve months she has only received £10 from needlework and £20 as temporary companion. Her daughter and sister have given some assistance towards rent and food, but owing to their own slender means are unable to assist to any great extent. Applicant's rent is £26 per annum. Voted £18 in 12 instalments.

Widow, aged 46, of L.R.C.S. Edin. whose last appointment was in South Africa and where he died three weeks after landing. The War Emergency Fund helped considerably whilst the applicant's late husband was searching for an appointment and materially helped to get the South African post. Applicant is now destitute and only one daughter earning a small salary, as an actress. The applicant has been in hospital with heart trouble. Voted £5 and case to be reconsidered.

Subscriptions may be sent to the Hon. Treasurer, Sir Charters Symonds, K.B.E., at 11, Chandos-street, Cavendish-square, London, W.1.

Reviews and Notices of Books.

LEGAL MEDICINE AND TOXICOLOGY.

Second edition. Edited by FREDERICK PETERSON, M.D., LL.D., WALTER S. HAINES, A.M., M.D., and RALPH W. WEBSTER, M.D., Ph.D. London and Philadelphia: W. B. Saunders Company. 1923. Two volumes. With 334 illustrations. Pp. 2268. £5.

IT is now many years since the first edition of this work appeared, and it is gratifying to see a new and thoroughly revised edition. As in the former edition, the sections have been written by a variety of authors, the whole work being supervised by two editors; but in this edition a third editor—namely, R. W. Webster—has been added. Vol. I. deals with forensic medicine, and the usual subjects included under this heading are in the main well discussed. The introduction of a chapter on the Bertillon System of Identification, profusely illustrated, is particularly interesting. The sections of this volume are written from the broadest medico-legal standpoint, with the result that at times those parts of medico-legal work in which medical men most frequently require help—namely, criminal jurisprudence—do not receive all the detailed attention which the subject justifies. This is the case, for example, in the chapter on abortion. The medico-legal importance of accidental injuries and insurance are so vast that the space allotted to them does not permit of thorough treatment, even when certain classes of injuries only are discussed. Nevertheless, the material is good, and the reader can always pass on from this book to special works dealing with these subjects. Readers are reminded that the authors are reciting American law, and that the English law, although the same in principle, may vary considerably in detail.

Vol. II. deals with toxicology, asphyxia, and the examination of blood, semen, and hairs. The analytical details for the various poisons are well described, and the methods given are practical and up to date. The tendency in some places is towards over-elaboration of detail in order to purify the poison isolated, which might result, in the case of small traces, in the failure to detect the substances in question owing to loss in the process of purification. A coloured plate of alkaloidal "changing colour" reactions is useless, as anyone who has practical experience of these tests knows, and should be omitted. It is rather unfortunate that the authors do not indicate, when alternative methods of analysis are given, which in their opinion is the most useful, and when a number of tests for a particular substance are given the reader would gladly learn which test or tests are to be regarded as specific to the substance in question. It is noted with satisfaction that in the majority of cases where a reagent is directed to be used the strength and the amount required for the test is stated, instead of vague statements such as "dissolve in soda," which so commonly occur in text-books.

The bibliography is excellent, and copious references both of cases and analytical records are given. Both volumes are well indexed, and Vol. II. has, in addition, a general index.

ANÆSTHESIA.

Handbook of Anæsthetics. Second edition. By J. STUART ROSS, M.B., Lecturer in Practical Anæsthetics, University of Edinburgh. Edinburgh: E. and S. Livingstone. 1923. Pp. 328 and illustrations. 8*s*.

THIS excellent little work has been enlarged and revised. Its character is unchanged and it still possesses the merit which originally distinguished it—viz., that it teaches the student sound general principles and their foundation rather than confusing him with a heterogeneous mass of clinical details and descriptions of apparatus. The chapter on asphyxia (anoxæmia) is particularly good, and the author has made capital use of the most recent work of Haldane and other physiologists. The general teaching is identical with that to be found in English text-books, and the traditional Scottish preference for chloroform has no attraction for Dr. Stuart Ross. In the chapter on choice of anæsthetics the advice is sound and logical, but we would like to have seen included the consideration of cases of advanced intestinal obstruction with regurgitation—a condition which, when present in very obese subjects, offers one of the most formidable problems that the anæsthetist is ever called to face. The author suggests that insulin might usefully be tried in the treatment of post-anæsthetic toxæmia. There are one or two unimportant misprints (p. 140, "there" for ether) and Trendelenburg's name is consistently misspelt. The book has no superior among those of its own size on the subject with which it deals.

Die Methoden der Lokalanästhesie in der Bauchchirurgie und ihre Erfolge. By Prof. Dr. HANS FINSTERER, Primarius der chirurgischen Abteilung im Spitale der Barmherzigen Brüder zu Wien. Berlin and Vienna: Urban and Schwarzenberg. 1923. With 42 diagrams. Pp. 196.

Prof. Finsterer is a warm advocate of local anæsthesia for all big abdominal operations. Although sometimes he supplements local with a certain amount of general anæsthesia, he uses this technique almost exclusively in comparatively young subjects. The more extensive the operation required the more anxious is he to restrict anæsthetics entirely to those of local action. In order to get the necessary insensibility in such proceedings as resection of the stomach he has recourse to splanchnic injection, mere infiltration methods being insufficient to obviate pain and disturbance produced by interference with the mesentery. Splanchnic analgesia he carries out by the method advocated by Braun—viz., by injecting the solution into the splanchnic area from the front, after the abdomen has been opened. He prefers this to the posterior entry of Kappis and Nägeli, and is thoroughly opposed to the blind entrance through the anterior abdominal wall. The solution he employs is novocaine, usually in about ½ per cent. strength. Preliminary hypodermic injections of omnopon and of morphia and atropine are used. The chief reasons which the author gives for his strong preference for local anæsthetics for abdominal operations suggest that he has not been helped by the best forms of general anæsthesia, and also that the procedures are longer than those customary in Great Britain for identical conditions. It is the post-anæsthetic morbidity due to toxic effects of very long deep administrations and to consequent pulmonary and cardiac affections that Prof. Finsterer finds a bar to the employment of general anæsthetics. In fact, he maintains that the chief cause of mortality or of delayed recovery after serious abdominal operation is the general anæsthetic, when that is employed. Obviously, if this premise is correct, the conscientious surgeon has no alternative but to adopt local methods of anæsthesia in spite of their disadvantages, admitted by Prof. Finsterer, of requiring much more time and trouble from the operator. The author states that he has seen no instance of post-operative shock within 24 hours when he has employed local anæsthesia. Acute dilatation of the stomach, however, does occur as it does after narcosis. Psychic disturbances in the absence of general anæsthesia are entirely prevented, Prof. Finsterer states, by his two preliminary hypodermic injections. The author does not care for sacral analgesia because he regards the large amounts of solution required as providing a danger, nor is he a strong supporter of spinal injections, the effect of which does not last long enough for his purposes. His work is based on an experience of 2408 operations, of which 2186 were performed with the use of novocaine, and of these 1447 were done without any assistance from a general anæsthetic.

After general considerations of different forms of anæsthesia and their applicability to slight and to severe abdominal operations the latter part of the work is given up to detailed description of the use of local anæsthesia in various abdominal operations from small procedures for hernia to extensive resection of the stomach for malignant disease. The book is a valuable addition to the literature of abdominal surgery.

DISEASES OF THE MALE ORGANS OF GENERATION.

By KENNETH M. WALKER, F.R.C.S., M.A., M.B., B.C., Lecturer in Venereal Diseases, St. Bartholomew's Hospital; Surgeon in Charge of Genito-Urinary Department, Royal Northern Hospital and Miller Hospital. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. Pp. 234. 12*s.* 6*d.*

THIS volume gives a good account of present-day knowledge of the diseases of the generative organs in man. It is not intended to be an exhaustive treatise to which the specialist may refer, but to form a guide to the practitioner. Diagnosis is fully considered and the grounds upon which prognosis should be based. Minor surgical measures are described in detail, whilst of major procedures, only the main facts are given. The author is most interesting when he writes on those subjects which he has particularly investigated, enlargement of the prostate and tuberculous infection of the urinary tract. Throughout the book there is a commendable absence of extreme views. Thus the operations of vesiculectomy and vesiculotomy are advised only when the patient's health is seriously affected by the disease, whilst the restricted possibilities of orchidopexy are stressed. We note that the author regards inversion of the sac in chronic hydrocele as an uncertain operation, and rightly so. More emphasis might have been given to this view, as also to the fact that injection of a hydrocele with irritants not only frequently fails to cure but also may give intolerable pain.

The practitioner who is guided by the recommendations in this book will not go far wrong.

STUDIES OF THE ATOM.

The A B C of Atoms. By BERTRAND RUSSELL, F.R.S. London: Kegan Paul, Trench, Trübner and Co., Ltd.; New York: E. P. Dutton and Co. 1923. Pp. 175. 4*s.* 6*d.*

The Structure of the Atom. By E. N. DA C. ANDRADE, D.Sc. Lond., Ph.D., Fellow of University College, London; Professor of Physics in the Artillery College, Woolwich. London: G. Bell and Sons, Ltd. 1923. Pp. 314. 16*s.*

THE alphabet being the key to a language we cannot do better than recommend the A B C of atomic physics before its complex language is tackled. In Mr. Bertrand Russell's book we have a very good A B C—simple, lucid, and a little diverting in places. But the diversions are so cleverly introduced that they often serve the useful purpose of convincing the reader that some of the wildest flights of imagination on the part of the physicists are not really so strange after all. How wonderful a stride the modern explorer in atomic constitution has made is brought vividly home to the reader when he realises that practically the whole of the A B C of the subject has been discovered in the last 25 years. Mr. Russell's book is one that the reader may finish at a single sitting; but he will go back to this A B C to renew acquaintance with many a felicitous passage. He will no less surely want to go on with the subject after his initiation, and he can hardly do better than take up Dr. Andrade's book, which is a critical exposition of the facts and theories of atomic construction as conceived to-day, and is chiefly remarkable for the masterly way in which the matter is handled, The author knows where to go for his facts and where the fruitful theories lie, and he marshals them together, not only in order to show how wonderfully they bear each other out but also to declare their limitations. It is one of the surprises of the theories concerning energy and atom building that, while very successful within a restricted range, they become irreconcilable when called upon to coördinate the phenomena of free space as well as those of matter. It is here that Dr. Andrade holds the scales evenly before the reader, not hesitating to speak of those divergences, though, as an experimenter himself, showing the keenest pleasure in recording the close agreement that often occurs between theoretical prediction and experimental findings. Dr. Andrade has dedicated his book with modesty and grace to Sir Ernest Rutherford. We can assure him that the "presumptuous hope" he expresses in this foreword is fulfilled in the succeeding chapters of his book.

HANDBUCH DER KINDERHEILKUNDE.

Vol. I. Edited by Prof. M. VON PFAUNDLER and Prof. A. S. SCHLOSSMANN. Leipzig: F. C. W. Vogel. 1923. Pp. 962. 40*s.*

THE first volume of this work promises that when the three volumes are completed the reader will be possessed of a complete system of medicine as it applies to children. The general arrangement is good, and the scope is vast, covering every aspect of the subject from baby-linen to the chemistry of the lipines. The less abstruse portions of the book are perhaps the least attractive, illustrations such as those on p. 104 being more reminiscent of an out-of-date stores catalogue than of a modern work on medicine. On the other hand, the articles by Dr. Rudolph Neurath, of Vienna, on the physiology and pathology of puberty, and Dr. Carl Hochsinger's article on rickets will find interested readers in all countries. The bibliography given at the end of each section will be found particularly useful to those who have been latterly deprived of German literature. The book is adorned by many coloured illustrations and modern photographs which are admirably reproduced.

THE MIND IN ACTION.

A Study of Human Interests. By GEORGE H. GREEN. London: University of London Press, Ltd. 1923. Pp. 168. 3*s.* 6*d.*

THIS book explains in every-day language modern ideas about mental processes. It is peculiar inasmuch as the writer adopts the psycho-analytical view of these processes, except in regard to suggestion and auto-suggestion, where he becomes enthusiastic about Mr. Coué, and yet so thoroughly respects the taboo that sex does not find mention. A list of symbols that "stir great numbers of people" fills six lines, but the reader is left wondering what meaning they express. Some of his statements embody the uncritical acceptance of doubtful propositions, as when he says (p. 97): "The actual experience of being born . . . can be recalled in special circumstances in many cases." The matter is presented crisply and intelligibly, but the book shows little evidence of first-hand knowledge.

WHAT IS MAN?

By J. ARTHUR THOMSON. London: Methuen and Co. 1923. Pp. 244. 6*s.* 6*d.*

THE capacity of the Professor of Natural History in the University of Aberdeen for reading and thinking and writing seems to be almost limitless: in the last few years he has produced by himself a small library of very readable books with a mass of more fugitive articles to fill up odd moments. The present volume consists of a course of ten lectures on man as an organism and a social person, delivered at the invitation of the senators of the United Free Church College in Aberdeen, and intended to indicate the sort of knowledge which everyone should have about themselves. It is, as the author says, an exposition of the fundamental biological facts by a biologist who does not regard them as supreme, and the general outlook will recall Prof. Thomson's Gifford lectures on the

System of Animate Nature. He discourses in order of man's origin and early history, the development of social relations, behaviour and conduct, variability and inheritance, the struggle for existence, bodily disharmonies, and the possibilities of the future. The treatment is not profound, and he takes no very definite sides in the many controversial issues which he raises, but by references in the text and a long bibliography at the end he indicates where further discussions of the various matters may be found. The tone is mostly a cheery if rather circumspect optimism. Only on the old bugbear of the survival and multiplication of the unfit does the note of apprehension creep in. But surely, until one is quite sure, which Prof. Thomson is not, of the direction which human development is going to take—physical or spiritual—it is unnecessary to be other than cheerful about this too. There may yet be something to be said for the poor Jukes family.

HIGH BLOOD PRESSURE.

Its Variations and Control. By J. F. HALLS DALLY, M.A., M.D., B.C. Cantab., M.R.C.P. Lond. London: Wm. Heinemann (Medical Books), Ltd. 1923. Pp. 155. 10*s*. 6*d*.

THE author of this book has succeeded in getting a vast amount of information into a comparatively small space. As an introduction to the extensive literature on blood pressure the treatise is excellent, but we cannot help thinking that a more dogmatic treatment of the subject would be advisable in a manual designed for the practitioner. In the first part of the book a full and clear account of modern sphygmomanometric technique is given, special attention being paid to the auscultatory method introduced by Korotkoff. We are pleased to notice in an English text-book that the researches of Gallavardin and other French workers receive full recognition. The chapters dealing with hyperpiesis and its relation to arterial and renal disease serve to emphasise the chaotic state of modern views on this subject, rather than to simplify the problem for the busy practitioner. The author lays stress on the common mistake of relying on isolated observations of systolic pressure alone, and describes clearly the importance of the diastolic pressure in prognosis and treatment. The latter part of the book is devoted to treatment, life assurance in relation to blood pressure, and the historical aspects of the subject. A very complete bibliography is given at the end, including references to the most recent work.

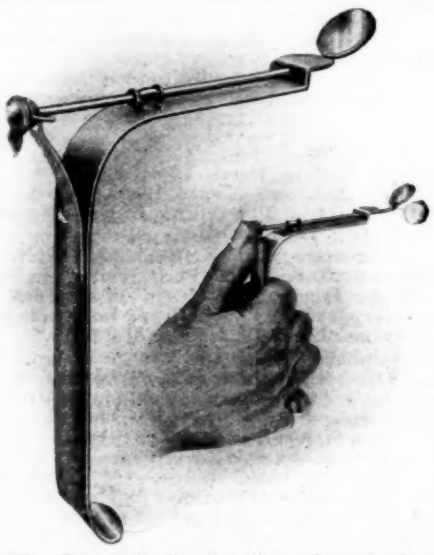
JOURNALS.

MEDICAL CLINICS OF NORTH AMERICA. Vol. VII., No. 1. London and Philadelphia: W. B. Saunders Company. Pp. 315. 55*s*.—This number, described as the Mayo Clinic Number, is entirely devoted to papers by workers in the clinic, or in the Mayo Foundation for Medical Education and Research at the Graduate School University of Minnesota.—R. M. Wilder gives a short account of the history of the discovery of insulin, its manufacture and standardisation, and a brief account of its application in the treatment of diabetic patients.—S. Franklin Adams gives a description of the food mixtures which are suitable for the treatment of diabetic patients, and a clear account of the value of the aketogenic ratio. The diabetic nomographs are printed and described.—Clifford J. Barborka describes the use of insulin in the treatment of diabetes as practised in the Mayo Clinic. The procedure in cases of severe and moderate diabetes is discussed, together with that indicated in patients with coma and those suffering from general diseases.—W. M. Boothby and Russel Wilder have estimated the effect of insulin on the basal metabolism, and conclude that it does not increase it unless the blood-sugar falls below 0·09 per cent., whereas adrenalin always increases it.—Leo L. J. Hardt and Edward G. Joseph have experimented with the kymograph under various conditions of the stomach, and the results are well worth reading.—A. H. Logan describes a successful treatment of three cases of ulcerative colitis with tr. iodine 10 drops three times a day. These three cases were completely cured, but many other cases were quite unaffected. The opinion is offered that it produces its effect by means of a general metabolic effect and not by a local effect.—Philip S. Hench records a simple method of estimating the urea in the saliva of patients with urea retention. It is only necessary to collect the saliva and titrate it with a 5 per cent. solution of mercuric chloride. It is claimed that the titration figure runs parallel with the milligrammes of urea in the blood. This method should be of use in watching patients with urea retention.—Leonard G. Rowntree discusses the Muirhead treatment for chronic Addison's disease, which consists in giving 2 to 15 minims of 1 in 100 adrenalin hypodermically twice a day, 1 c.cm. of adrenalin in salt solution twice a day per rectum, and 5 gr. dried desiccated gland three times a day by mouth. Four patients made great improvement under this regime, and the results in two others are considered as very promising.—Frederick A. Willius and Walter M. Boothby discuss the condition of the heart in a long and valuable paper on exophthalmic goitre and adenoma with hyperthyroidism.—Several other papers are also of considerable interest.

New Inventions.

A SIMPLE PHARYNGOSCOPE.

THIS instrument, which consists of a tongue depressor carrying a movable mirror, has been designed to facilitate the examination of the naso-pharynx in children and others in whom examination



is difficult. In use the head of the patient is steadied by placing the left hand on the vertex, and the tongue is depressed with the instrument held in the right hand, the thumb of which then presses forward the spring controlled mirror until it passes behind the soft palate. Lateral movements of the thumb-stud cause rotation of the mirror so that a view of the whole naso-pharynx can be obtained without moving the tongue depressor. The instrument is curved in such a manner that it presses with the least force upon that portion of the tongue which, on stimulation, produces the palatal reflex.

Messrs. Phillip Harris and Co., Birmingham, are the makers.

A. LOWNDES YATES, M.D., B.S. Lond.,
Birmingham. F.R.C.S. Edin.

THE LANCET.

LONDON: SATURDAY, DECEMBER 8, 1923.

DE AMICITIA.

ON the evening of Thursday, Nov. 29th, over four hundred guests sat down at the Hotel Victoria, Northumberland-avenue, to celebrate the Centenary of THE LANCET, and the talk was of friendship. Not merely of medical friendship, although in large measure those who were there were medical men or women, and of those who were not some admitted their youthful ambition to enter the medical profession. But of other friendships; of the increasing contact in these days between the territories of medicine and the law, of business men and women working side by side with professional men and women, of the bond between medicine and scientific thought, of intellectual alliance with other countries, not the least with France. A pleasing sense of solidarity was manifest, no one section of a motley profession preponderated; young and old were there, progressives and conservatives, seers of visions and dreamers of dreams, the scientist lying down with the empiricist. The names of those who were present are set out on another page. There were regrettable omissions of those prevented by health or urgent calls from attending, but to enumerate the names is to mention most of those who by the culture of natural gifts have attained distinction or high office in the medical world. The occasion was not one for vain-glory. Many things which were said at the gathering would be quite improper to repeat. They were little intimacies which might be passed over as kind phrases had they been other than the translation into words of an affection long manifest in deeds. For THE LANCET has been for a hundred years, and will remain, a friend-made paper. Just as medicine is all-pervading, so its votaries are to be found in all classes, of all dispositions, and under all skies. And therefore the *amicitia* of which we are speaking has itself no bounds.

THE PROBLEM OF RHEUMATIC DISEASE.

THE one point clearly demonstrated by recent papers published on acute rheumatism, whether considered individually or collectively, is the urgent need for organised research upon the infective cause of the disease. Whatever may be the predisposing causes of rheumatism—and there are many—the fundamental ætiology of the disease remains obscure. This statement is without prejudice to the well-known work of Drs. POYNTON and PAINE, who believe with others that the *Diplococcus rheumaticus* is the cause of acute rheumatism. It would, in any case, not be enough to have identified merely the causative organism, for in order to understand the disease we must further know its mode of entry into and distribution among the tissues. We are still ignorant, for example, of the part played by the tonsils in rheumatic infections; this stands in marked contrast with what we know to be their significance in tuberculosis. The tubercle bacillus has been found in the tonsils and the general relation of the invading organism to the lymphatic system of the neck has been worked out in some detail; moreover, we know that most cases of cervical lymphadenitis of tuberculous origin are not commonly associated with the more generalised tuberculosis of the respiratory and digestive systems. If the tonsils are, as was recently affirmed by Dr. H. J. STARLING,[1] the main portal of rheumatic infection—and, on the whole, there is more evidence in favour of the tonsil than against it as a portal of entry—it is difficult to see what prevents the causative organism from gaining access to the viscera and nervous system. Inflammation of the interposed lymphatic system has never been remarked as a feature of rheumatic infections, which indeed occur frequently enough in apparent independence of any tonsillitis.

Pending, therefore, the results of further investigation into the nature of the causative organism of rheumatic disease and its distribution in the tissues, clinical research is bound to be empirical. That is not to say that such work is not of value, but rather that each observer, since he is unable to correlate his observations with any established bacteriological picture, is compelled to enunciate some hypothesis to account for the features of the disease as they present themselves to him. The hypothesis put forward by Dr. M. O. RAVEN in our present issue is that, whatever the cause of the disease or the portal of its entry to the body, once an infection has been established in a child periods of restful life of many months' duration in fresh air are necessary to obviate relapse; and further, that when the heart is implicated, complete rest in bed is required until the cessation of change in the physical signs of the heart indicates that the infective stage is closed. We agree that sanatorium treatment is indeed as important in cardiovascular disease in children as in tuberculosis. To build up the resisting powers of the body and to prevent reinfection long periods of convalescence in healthy surroundings appear to be essential, and in this country convalescent homes adapted for rheumatic children and cases of early structural change in the heart are badly needed. As to the criteria of progress it is unfortunately not always so easy as Dr. RAVEN seems to believe to note progress in valvular disease from auscultation. The altered quality of the murmur as an index of advancing malady is open to many fallacies. But physical signs combined with general condition will probably provide sufficient information to avoid the possible danger, emphasised by certain other observers, that the heart may be put at rest for too long. Another hypothesis, already referred to, is that of Dr. STARLING, who bases it upon observation of cardiac cases in adults and children. He is convinced that the tonsils are the main portal and focus of rheumatic infection and that complete enucleation of the tonsils is therefore a valuable means by which the acute attack may be aborted and further infection prevented. This thesis finds support in the important work of Dr. W. ST. LAWRENCE,[2] of New York, who found tonsillectomy of great avail in preventing recurrence of rheumatic fever or rheumatic pains, though when chorea was present it proved a much less effective measure. It is only fair to state that against these observations stand those of Drs. G. H. HUNT and A. A. OSMAN,[3] who find that in a series of 144 patients those submitted to tonsillectomy showed a greater percentage of relapse than those not operated upon, whether after the first or after subsequent attacks. A third hypothesis, borne out

[1] Guy's Hospital Reports, October, 1923, p. 388.
[2] Jour. Amer. Med. Assoc., Oct. 16th, 1920, 1035–1041.
[3] Dr. G. H. Hunt and Dr. A. A. Osman: Guy's Hospital Reports, October, 1923, p. 383.

by these last-named observations, is that recurrence is more likely to occur after a second than after a first attack.

Many other theories could be mentioned, for example, that the presence of carditis increases the liability to recrudescence of infection, and that the disease is communicable. As anyone who has worked on these or similar lines will know, the collection of sufficient material and the correct ascertaining of facts contributing to support or to contradict such hypotheses must of necessity take time; the difficulty of getting accurate news of old patients is often considerable, and the interpretation of clinical observations may be contradictory. For instance, while Dr. RAVEN considers stenosis of the mitral valve to be a clinical condition which every effort should be made to prevent, Dr. STARLING regards stenosis of the aortic valve as the most favourable development in aortic cases. Incidentally, there does not seem much ground for this latter assertion. The clinical data of rheumatic disease are, indeed, plentiful enough and lie widely scattered in time and space; from whatever aspect the problem is approached, plausible and useful hypotheses can be constructed. If a case has been made out for the existence of numbers of rest homes for the reception of sufferers from rheumatic disease, it appears equally desirable that such establishments should be regarded as offering an unique opportunity for conducting organised research, not only upon the disease but upon the cardiac lesions attributable thereto. Of recent years the investigation of these lesions has yielded less fruit in the direction of prevention than in that of therapeutics. Dr. G. A. SUTHERLAND, in the address published at the front of this issue, shows clearly some of the clinical applications of our increased knowledge of the way drugs act on the diseased heart. We ought not to be satisfied with attaining greater facilities for the relief of cardiac lesions, but should strive to obtain a view of the pathological battlefield in rheumatism at least as clear as that which we now possess in the case of tuberculosis.

PRISON REFORM.

THE report of Lord Justice ATKIN'S Committee on the procedure of criminal trials in which insanity is pleaded raises questions which lie on the borderland of medicine and the law. Some of these are dealt with in a special article on p. 1262. The increasing interest taken by the medical profession and the public in the subject of prison administration will be further stimulated by the recently-issued report[1] containing the latest official views on this matter. The report shows an increase of 3910 in the receptions into prison as compared with the figures for the previous year, but this increase is almost entirely accounted for by a large increase in the "debtor" receptions, most of these being committed for failure to pay arrears on maintenance and bastardy orders. In some instances this failure is due to misfortune, but many cases are those of men who, obstinately refusing to fulfil their obligations, present a problem which still awaits solution. In any case, however, the number of receptions, both absolutely, and relatively to the population, is far lower than in pre-war days, although somewhat higher than in the year immediately after the armistice.

The attitude of the Commissioners towards the officials at the several prisons shows a marked improvement. It is not so long since any expression of individual views on the part of these officials was severely checked, the result being that their reports tended towards extreme aridity and formality. To-day these reports—of which extracts appear—are much fuller and more interesting; it is realised that the expression of views by these officers, many of whom have spent their working lives in the service, can do nothing but good, even if their views happen to disagree, in certain details, from those of the Commissioners. The longest extract is that from the report of Dr. M. HAMBLIN SMITH, medical officer of Birmingham, who deals with the necessity for the intensive psychological investigation of the individual offender. This necessity is also emphasised by other medical officers. It is admitted by all that there are large groups of mentally abnormal persons which are not recognised by the existing law. Many cases of delinquency are due to mental conflict and other psychopathic conditions. And it is quite obvious that prison is a wholly unsuitable place for these cases, many of which are eminently amenable to treatment. Recognition of the existence of these psychopathies does not imply that those who suffer from them are to be allowed to do whatever they please without interference on the part of society, and public opinion will soon insist upon the provision of institutional and other arrangements for dealing with these cases on rational lines. Full psychological examination of cases before they are sentenced is of the utmost importance in other ways. Only when such examination has been made can a court possess the most essential information with respect to the case with which it has to deal, and without this information treatment must be administered entirely in the dark. It is easy to understand and to sympathise with the movement for the free granting of bail, but this implies fewer cases being medically examined before conviction. The Commissioners suggest that this problem could be solved by the provision of remand homes, quite apart from the prisons—an excellent suggestion which, however, involves a question of expense. We note with great satisfaction the establishment of a scheme for the intensive study of lads sentenced to Borstal treatment. From this scheme information of scientific value should result. Local justices do not take enough advantage of the special facilities provided for psychological examination at several prisons. This matter should be taken up by some authority which is in a position to enforce compliance with its demands. Psychological examination might also do something to prevent the futile and harmful sentences of 14 days and less which are still given in more than 25 per cent. of convicted cases. With respect to probation, the report points out the need for a high standard of quality in the probation officers. Every case placed on probation is an individual problem, just as is every case sentenced to imprisonment. Probation implies consideration of the offender's psychology, yet this fact is hardly recognised. A recent committee which investigated the probation system took no medical evidence, and did not appear to recognise that the question had a psychological side. Probation officers in this country, whatever other merits they may have, are not skilled psychologists. In some American cities this matter is better ordered, and the chief probation officer is a physician with psychological training, who is assisted by an adequate staff.

The report is, in many ways, hopeful. The paramount importance of the psychological side of penal measures is gradually becoming recognised. A scheme of education, directed by eminent experts in each locality, is being initiated. As the Commissioners say, every kind of treatment tends to produce the state of mind which it anticipates. The treatment in a well-managed prison is directed towards giving each man some sense of his responsibility, both as a member of the small prison community and as a citizen of the larger world outside. And if we work in this spirit we may look forward to the future with confidence.

[1] Report of the Commissioners of Prisons and the Directors of Convict Prisons for the year ended March 31st, 1923. H.M. Stationery Office, pp. 95, price 2s.

Annotations.

"Ne quid nimis."

WORK AT THE CAIRO SCHOOL OF MEDICINE.

WE published last week two articles from the surgical department of the Royal School of Medicine in Cairo, describing work carried out in the Kasr-el-Ainy Hospital. This school is recognised by the Royal English Colleges as having a proper academic standard and a visitor is sent yearly by the Conjoint Board to inspect examinations and the general lines of medical education. Heads of departments in both school and hospital are British, working in close collaboration with Egyptian professors and assistant professors, all of whom have British diplomas and have spent some years of post-graduate study in England. The teaching is in English although there is a certain demand for a modified system of teaching in Arabic. Mr. A. B. Ibrahim writes on bilharziasis of the ureter from an experience of 100 cases observed over a period of five years. Bilharziasis of the bladder has been widely recognised, but this affection of the ureters appears to be far more dangerous and intractable in its results. Now that treatment with tartar emetic is meeting with such success, it is of the first importance to ensure early recognition of these cases of renal colic, in which the failure of radiograms to demonstrate the presence of stone leads to a suspicion of bilharziasis. Mr. A. W. Mooro's case of arterio-venous aneurysm of the neck derives its chief interest from the opportunity offered and taken of careful histology of the healed arterial wounds. Dorrance's suture, although inferior cosmetically to intra-arterial suture, healed with formation of far less fibrous tissue, and this observation may be of help to surgeons who are increasingly occupied with the suture of blood-vessels.

HERPES AND LESIONS OF THE NERVOUS SYSTEM.

THAT many acute affections of the nervous system are produced by infections is well established, and it is also probable that in the future yet others will be proved to have a like ætiology, amongst which we may cite Landry's paralysis and possibly certain cases of myelitis. The problem of the path of invasion in all such cases is one of great interest, and is still a field in which much work remains to be done. Even in such well-understood conditions as epidemic cerebro-spinal fever the route of infection is not universally agreed, although lymphatic extension via the naso-pharynx is the conventional teaching. A like path is favoured for the virus of epidemic encephalitis. Other infections—e.g., the toxin of tetanus and the virus of rabies—reach the central nervous system by following the peripheral nerve trunks, the route being clear but the intimate mechanism debated; but even in cases where the route of approach is known there is a great deal of light to be thrown upon the cause of the localisation of lesions within the central nervous system. The recent demonstration of the neurotropic affinities of the virus of herpes by Grüter, and the confirmation of this work by many investigators, but especially by Levaditi, Harvier, and Nicolau, has given us a virus which is readily manipulated and lends itself to experimentation in this direction. Inoculation into the cornea of the rabbit generally produces keratitis, with a marked tendency for the virus to spread into the nervous system, and therein to produce results akin to those produced by the virus of encephalitis, and, indeed, it is held by a majority of workers that the two infections are traceable to one and the same virus. Prof. Levaditi is himself dealing with this theme in one of the Harben Lectures to be delivered next week, in English, at the Royal Institute of Public Health in London. Recently Marinesco and Draganesco[1] have approached some of the problems we have briefly alluded to by means of experiments with this infection carried out upon rabbits. They have found that the virus ultimately attains the central nervous system whether it be inoculated by the habitual corneal route, or into a peripheral nerve or a sympathetic ganglion. Its course is demarcated by lesions of a subacute inflammatory type in the peripheral nerves and by degeneration and infiltration in the central nervous system, and is thus fairly readily followed in histological preparations. Following out this method it has been discovered that in an infection spreading up from the sciatic nerve the progress of the changes produced could be traced to the posterior root ganglia, and thence to the posterior portions of the cord, both white matter and grey. Where the inoculation was corneal, lesions were found in the choroid, the ciliary ganglion, the ophthalmic division of the fifth nerve, the Gasserian ganglion, and finally, and most intensely in their intracerebral distribution, in the sensory nucleus of the fifth nerve. The thesis of this work, therefore, is that in the case of the herpetic virus the nervous lesions which it occasions are produced by a direct invasion of the brain or cord by way of the nerve trunks, the virus travelling by the shortest available route. The distribution of the lesions within the central nervous system depend, not upon any "elective" nature of the virus, but upon the pathway by which the nervous system is approached and will, although always diffuse in some degree, constantly show especial severity in the portion of the brain or spinal cord which is first reached. The nature and intensity of the lesions in these experimental infections vary somewhat, this variation being in accord with the acuteness or chronicity of the malady.

[1] Annales de l'Institut Pasteur, vol. xxxvii., No. 8, Aug., 1923.

EVOLUTION OF THE MODERN PUBLIC HEALTH CAMPAIGN.

A VIVID and fascinating history of the evolution of public health in modern life is embodied in the five pregnant chapters of Prof. C.-E. A. Winslow's recently published book.[1] In the words of Osler, he has made "an aeroplane flight over the progress of (preventive) medicine through the ages," which will amply repay study by physicians and social workers. In the first chapter the dark ages of public health are discussed, and we see contrasted the Greek and Roman care of the body, its strength, and its cleanliness, with the post-apostolic view crystallised by St. Jerome: "Who is once washed in Christ needs not to wash again." Sanitary regulations came earlier than is usually recognised, and we note with interest that Shakespeare's father was fined at Stratford-on-Avon on two occasions, once for depositing filth in a public street, and once for not keeping his gutters clean. But improvement was very slow, and so recently as the very dry summers of 1858 and 1859 the two great national reproaches were stated by William Budd to be that "India is in revolt and the Thames stinks." In the second chapter is sketched the great sanitary awakening. There were many forerunners, among whom Richard Mead, George Baker, and Captain Cook must ever hold a high place. The influence of humanitarianism and of the Wesleyan revival was very potent in expediting reform, though Chadwick's work was actuated chiefly by exceptional realisation of the economic importance of health. Prof. Winslow accepts the view that the report of the Massachusetts Sanitary Commission in 1858, which was written by Lemuel Shattuck, and was a most masterly statement of the needs and methods of reform, owed its inspiration to the writings of Chadwick and Simon. The third chapter is concerned with Pasteur and the scientific bases of prevention of disease, while the fourth chapter details more fully the triumphs of bacteriology. In the United States the first State hygienic laboratory was established at Ann Arbor in 1887–88, the first municipal public health laboratory by Dr. C. V.

[1] The Evolution and Significance of the Modern Public Health Campaign. By C.-E. A. Winslow, Dr. P.H., Professor of Public Health, Yale School of Medicine. Yale and Oxford University Press. Pp. 65. 7s. 6d.

Chapin in Providence in 1888. The early utilisation of bacteriology as a means of sanitary investigation owed much to the late Dr. Hermann M. Biggs. In the fifth chapter the New Public Health is discussed. This is exemplified in the child welfare movement, the various aspects of which are summarised by Prof. Winslow. Education is the keynote of this modern campaign for public health, and the importance of district nursing and of the public health nurse in this connexion need only be mentioned. The value of the educational side of anti-tuberculosis work emerges in this aspect, and with this all will agree; but there is possibly a tendency to minimise the importance of reducing massive infection by tubercle bacilli as a means of reducing the incidence of tuberculosis. We are all at times apt to forget that the amount and the frequency of exposure to infection may be reduced below the point at which disease will be produced, even when freedom from infection cannot be secured; although with this the hygienic means for raising resistance to larger doses of infection retain their importance. The problems of syphilis and of mental hygiene are also discussed; and a most important issue is raised in the statement that if medical science is to yield the high service of which it is capable, systematic medical examinations are needed, and this service medical science can by no possibility render so long as it is limited to the alleviation of the symptoms of architecturally completed disease. In Prof. Winslow's view "it is probable that, before medicine becomes truly preventive, there must be a radical alteration in the basis of payment for medical service."

DEMENTIA WHICH FOLLOWS APHASIA.

To Leonardo Bianchi must be awarded the merit of having cleared up the confusion which for some time existed in this chapter of neurology. In a series of numerous and important publications, based on a minute study of many clinical cases, he analysed the different conditions in which the intellectual deficit of the aphasic finds an expression, and he has given a clear scheme of the various and changing relations which exist between each form of speech disturbance and the mental state. In a recent article Dr. F. Vizioli,[1] of the Mental Clinic in the University of Naples, gives a lucid and succinct account of Bianchi's work in this respect. It is first of all necessary to formulate a clear definition of the term aphasia. The name is taken to mean the speech disturbance caused by a circumscribed focal lesion in a certain region of the brain, the other regions not being affected. It is recognised that if any other kind of process exists, more or less diffused, which causes cerebral disease, disturbance of the function of speech in a more or less marked degree may always ensue. But in this case the aphasia becomes a complication or symptom and it will not be possible under such conditions to determine with exactitude what value should be ascribed to it in the interpretation of the dementic syndrome which may either follow or pre-exist. The conception of clinical entity of aphasia was first materialised by Bianchi in 1887 and developed by him in numerous subsequent publications, his two principal points of view being: (1) The true aphasic is demented because of his aphasia, but the inverse proposition is not tenable since it is devoid of scientific value and logical foundation; and (2) images of words exist as well as images of things. The clinical aspect shown by individuals affected with aphasic dementia is entirely special. In the early stages during the first and second weeks of the cerebral attack which causes the aphasia there may be present more or less strong psychomotor confusion and agitation. Generally these phenomena soon become less prominent, but may reproduce themselves at more or less long intervals and with more or less marked characteristics during the further course of the disease. Under ordinary conditions it is seen that these patients show that they still possess to a large extent images of objects, that they recognise them and their uses. If by gestures they can be made to understand a command, they perform it with sufficient precision. They rarely commit foolish actions and retain good relations with their relatives. Sometimes they have a vague consciousness of their condition and show resentment about it, but more often they remain impassively stupid and smiling. Their behaviour is usually good, and in hospital they are often eager to help in small every day duties. They know the doctors from the attendants and other patients, and are deferential to those whom they know to hold superior positions. In aphasic dementia we have therefore a distinct clinical entity which no one can deny without denying the evidence of facts or artificially misconceiving the results of observation. The main conception which dominates the mechanism of production of the demented state is that the sensory aphasic is demented because he is aphasic, whereas the inverse formula is erroneous. Three types may be distinguished according to the site of the cerebral lesion: (1) In some cases it follows a lesion of the inferior parietal lobe, and especially when this lesion affects well-educated individuals who by much study have accumulated a vast patrimony of culture which the lesion suddenly annuls. Such cases are not numerous and are recognised because other symptoms which reveal the localisation are added to the demented element. (2) Most frequently aphasic dementia follows a lesion of the auditory zone which is of the highest physiological importance in the complex mechanism of speech. (3) The third group is where there is paresis of the auditory centre through the lesion of the tracts of conduction and association. Considering the merit due to Prof. Bianchi of having isolated this clinical form and of having analysed the different conditions and the psycho-pathological mechanism by which the intellectual deficit of the aphasic becomes established and developed, Dr. Vizioli suggests that this mental condition should be henceforth known under the name of "Bianchi's disease." As Bianchi himself says, "the destruction of the region of the brain which has the function of constructing the images of words, of preserving and reproducing them as symbols of things in the external world, and their relations in the formation and expression of thought, implies a constant and profound intellectual deficit which is true dementia, even though the individuals who are affected with it are able to show a well-balanced and quiet demeanour and appear to recognise and even criticise the world which environs them."

[1] La Riforma Medica, Oct. 22nd, 1923.

THE BONE MARROW AFTER SPLENECTOMY.

IN a study of the changes that take place in the marrow after splenectomy Ernest M. Johnstone[1] has reached somewhat different conclusions from those arrived at by previous workers, notably Pearce and Krumbhaar.[2] The latter authors failed to find early changes in the marrow that would account for the phenomena, clinically observed, that the most severe stage of anæmia and recovery therefrom occurs during the first six months after splenectomy. They concluded that the late changes found—namely, hyperplasia occurring 6, 12, and 18 months after removal of the spleen—cannot be explained as compensatory to the anæmia following this operation. Contrary to these findings, Johnstone has found definite early changes in the marrow. He attributes the difference between his results and those of other workers to a fundamental difference in the method of experimental control. Former observers used the marrow of one animal to control the changes of another, whereas Johnstone has shown that the marrows from different normal animals vary very considerably, and therefore he controlled his post-splenectomy changes by an examination of a specimen removed from the same animal before the operation. Further controls were obtained from non-splenectomised animals which were subjected to similar

[1] Papers from the Mayo Foundation, vol. ii., 1921–22.
[2] The Spleen and Anæmia: Experimental and Clinical Studies. Philadelphia: J. B. Lippincott Co. 1918.

conditions as the splenectomised, even to the extent of opening the abdomen, drawing out the spleen, submitting it to the same amount of trauma as would be given were it removed, but replacing it in its place and closing the wound. Johnstone found that changes occurred earlier in the rib marrow than in the central third of the femur (the site chosen by other workers), and he therefore made his observations on the former bones.

In analysing his results he noted the changes that took place as follows: (1) Changes in the marrow itself—namely, erythrogenesis, leucogenesis, vascularity, and density of the marrow cells; (2) changes in the blood—namely, hæmoglobin content, erythrocyte, leucocyte, and differential count; and (3) changes in the condition of the animal, such as weight, general appearance, and any factor which might, even slightly, influence the marrow. Five series of experiments were carried out, of which the first four were unsatisfactory in not attaining exact experimental control, and are therefore not reported in detail. The fifth series consisted of (*a*) 14 dogs, eight splenectomised, and six non-splenectomised, from which specimens of marrow from the ribs were taken at frequent intervals, the operations being carried out under ether anæsthesia with sterile technique; and (*b*) four dogs, two splenectomised and two non-splenectomised, treated as in (*a*), but with the substitution of cocaine anæsthesia for ether. In order to obtain the marrow specimens a piece of rib 4 cm. long was removed from a point midway between the spine and sternum. The first specimen, removed before splenectomy, served as a control for subsequent observations on the same animal after splenectomy. The non-splenectomised dogs in both series received exactly the same treatment, including removal of portions of the ribs and the abdominal operation, but the spleen was returned to the abdomen. In this way many specimens (up to nine) were removed from the same animal at intervals of a few weeks to several months during a period of 54 weeks' observation. Thus each splenectomised dog was controlled by a specimen taken before the removal of the spleen, and by another dog subjected to exactly the same procedure at the same time. Before each operation the general condition of the animal was noted and the blood count examined. At the end of the experiment the animals were killed and necropsy performed to ensure that no other disease or factor was present that could have influenced the observations. Animals suffering from any complication were removed from the series.

Summarising these results Johnstone found that (*a*) the erythrogenetic activity was increased after a latent period of about four weeks. It reached its maximum intensity at about the twelfth week, remained at that level for about 12 weeks, and then decreased until about ten weeks later it reached a degree slightly above the normal before splenectomy, at which level it remained. Coincidently with this sequence of events, the hæmoglobin, red cell count, and weight of the animal first diminished with the development of anæmia, and only slowly rose again until they reached or exceeded a normal level. The vascularity and density of the marrow cells showed changes running parallel with the erythrogenetic activity. (*b*) The leucogenetic activity showed a marked rise in the first two to three weeks, but rapidly sank to the normal or below it. These changes were, however, inconstant. Concurrently the blood showed a parallel leucocytosis. From these results it appears that the increased erythrogenesis occurs some time before the reduction of the anæmia, and indicates that "whatever destructive agent becomes active after the removal of the spleen, it is so potent that its effect can be compensated only by prolonged hyperactivity and hyperplasia of the marrow." In discussing the relation of the marrow changes to the removal of the spleen and the subsequent anæmia, Johnstone mentions the various theories that have been advanced, such as the presence of a hæmolysin or the absence of an anti-hæmolytic body, a delayed release from the cells manufactured in the marrow, the effect of ether anæsthesia, and so on; but he comes to the conclusion that the hypertrophy and hyperplasia in the marrow is "probably secondary and compensatory to the anæmia that follows removal of the normal spleen, thus representing a physiologic response to a demand for more blood cells. It may have no relation to the absence of the spleen. The persistence of this marrow reaction, which far exceeds the duration of the post-splenectomy anæmia, may likewise be an expression of the law of regeneration in excess."

CHRONIC GLANDERS IN MAN.

OWING to the rarity of glanders in man, errors in diagnosis are apt to be made. Dr. H. Schwarz, of Troppau in Silesia, who records[1] a case in a soldier, aged 27, which proved fatal after 21 months' illness, illustrates the rarity of human glanders by the fact that during the period 1876–86 there were only 20 known cases in the whole of Prussia. During the late war, when there was for a time a considerable increase in glanders among horses, no epidemic occurred among human beings. According to Lühr's estimate, during the war there were only about 50 human cases, and these were mainly due to laboratory infections from handling cultures of glanders bacilli. Manipulation of the blood of infected animals apparently never gave rise to any case. Veterinary surgeons are occasionally infected in the performance of autopsies, but the attendants of animals suffering from the disease run the greatest risk. The not infrequent occurrence of joint swellings in the course of chronic glanders may lead to the erroneous diagnosis of polyarthritis. Acute glanders is liable to be mistaken for typhoid fever, septicæmia, or erysipelas, while chronic glanders, as in Schwarz's case, may be diagnosed as tuberculosis or syphilis. The mortality from chronic glanders is 50 per cent. (Jochmann). As regards treatment, Lühr and his collaborators, who carried out systematic investigations on a large number of horses during the war, employed seven different varieties of salvarsan, dyes such as methylene-blue, copper compounds, preparations of iodine and mercury, quinine, and other drugs. Most of these had no effect, though a combination of mercury and potassium iodide was encouraging. Protein-therapy, the use of serum, and treatment with glanders bacilli were also fruitless, and a specific cure for the disease has not yet been found.

FISH VENOMS.

AMONG the poisons belonging to the mineral, vegetable, and animal kingdoms there are few of which so little is known as the poisons contained in or excreted by fish. This is the more strange as a good deal of research has been carried out in this field, and Dr. H. Muir Evans, of Lowestoft, has for many years been engaged[2] in painstaking investigations into the nature of the defensive venoms of fish. His most recent work on the defensive spines of fishes, living and fossil, and the glandular structure in connexion therewith, with observations on the nature of fish venoms, published in the Philosophical Transactions of the Royal Society of London (Series B, Vol. 212, pp. 1–33) is largely concerned with the action of the venoms of *Trachinus draco* (the greater weever) and *Acanthias vulgaris* (the spiny dog-fish). Dr. Evans has supplemented his laboratory investigations with the clinical research for which a fishing port like Lowestoft provides ample opportunities, and he has come to the conclusion that the venom of *Trachinus draco* has both a neurotoxic and a hæmolytic action, the latter characteristic being the most important. The pain of a weever sting is of a burning, stabbing character and may be severe enough to drive a man mad. Smacksmen have told Dr. Evans that if a live weever is thrown overboard and is seized by a gull it

[1] Medizinische Klinik, Oct. 7th.

[2] See also THE LANCET, 1921, i., 517.

falls into the sea as if struck dead. A rare complication is the appearance of hæmorrhagic patches. If the sting is not treated, the pain may last for hours or throughout the day, and on account of the importance of poisoning by fish venoms among fishermen at sea, Dr. Evans is of the opinion that our smacks and drifters should be obliged to carry a simple outfit for the treatment of such cases. The most useful method is to inject into the puncture a few minims of a 5 per cent. solution of permanganate of potash, and a simple outfit, consisting of a small glass hypodermic syringe, rustless needles, and some small ampoules containing a solution of permanganate of potash, would cost little and might prevent much suffering. Two patients treated by Dr. Evans in this manner obtained immediate relief from the pain, and there was no subsequent inflammation or gangrene. It would be interesting to learn if the fish venom introduced into the human body parenterally by a stab has any connexion with the symptoms of poisoning induced by eating certain fish. There is a possibility that in both forms of poisoning the suprarenals may be involved, and in this connexion it is instructive to note that a Danish physician has recently recorded two cases of severe asthma following a large meal of uncooked mussels. In both cases the most distressing dyspnœa was associated with cutaneous phenomena—a scarlatiniform rash in one case, and severe itching in the other. In both cases the hypodermic injection of a little adrenalin had a most dramatic effect, normal respiration being restored within two minutes.

The pathological action of venoms will probably be unravelled by observations on the lower forms of animal life. Mussel poisoning may give rise to various clinical types—an exanthematous type, with itching and a rash, a gastro-intestinal type, and a paralytic type. In 1907 Richet obtained from the mussel (*Mytilus edilis*) a toxic substance analogous to the actino-congestine which he had previously extracted from sea anemones. Mytilo-congestine causes diarrhœa, vomiting, prostration, and, most significant of all, a fall of the arterial blood pressure. The necropsy shows intense hæmorrhagic congestion of the mucous membranes. Actino-congestine produces a similar clinical picture. Closely allied to the latter venom is meduso congestine obtained from the jelly-fish (*Rhizostoma cuvieri*), which causes local irritation and œdema, and in some cases intense dyspnœa, prostration, and severe diarrhœa in rabbits and guinea-pigs. The post-mortem findings include œdema of the lungs, visceral hæmorrhages, and congestion of the liver, kidneys, and intestine. But the most significant lesions are those of the suprarenal capsules which are engorged with dark blood. It is interesting to note that the venom of the weever also causes intense visceral congestion and internal hæmorrhages. It is probable that the dried venom of the jelly-fish is responsible for the frequent attacks of intense coryza and even asthma observed among the men when nets are mended after the summer drift fishing. These are but a few of the many points of great interest raised by the researches of Dr. Evans and others, and it is to be hoped that future investigations will add much to what we already know of a fascinating subject.

THE HEART IN DIPHTHERIA.

AFTER a review of the literature, in which she shows that there is by no means unanimity of opinion as to the cause of cardiac failure in diphtheria, Dr. Mathilde Loth,[1] of the Department of Pathology and Bacteriology of Yale University, describes her own observations on the heart in diphtheria, which consisted chiefly of (1) investigations of human cases coming to autopsy and (2) observations on the effect of diphtheria toxin on the guinea-pig heart. Physical examination of the cases which came to autopsy showed enlargement of the heart to percussion, feeble heart sounds, and gallop rhythm. The chief gross pathological finding was dilatation of the right side of the heart. On histological examination in only one out of 19 cases was definite myocarditis noted. The principal histological lesions were more or less cloudy swelling and fat accumulation with slight increase in the number of interstitial cells, which were mostly mononuclears. Comparative studies of the heart in cases in which death occurred from some infection other than diphtheria and a third group in which the heart was presumably normal showed that the differences between the three groups were quantitative rather than qualitative. There was no sharp line between the normal and abnormal, and no clear-cut difference could be detected in the hearts from diphtheria cases and those from other types of infection. Injection of lethal or sub-lethal doses of diphtheria toxin into guinea-pigs produced degenerative changes in the heart muscle similar to those seen in the human heart after diphtheria, but a true inflammatory reaction was not produced.

[1] Archives of Internal Medicine, 1923, xxxi., 637.

THE FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE.

THE Fifth Congress of the Far Eastern Association of Tropical Medicine was held in Singapore from Sept. 3rd to 17th last under the Presidency of Dr. A. L. Hoops, principal civil medical officer of the Straits Settlements. From the formidable list of 78 scientific papers submitted at this Congress, as well as from the large number of medical men of many nationalities who attended, we may gather that much important work was done. Accompanying the official report are three scientific contributions which have already been printed. Dr. A. T. Stanton, in discussing the control of beri-beri in the Far East, considers that the over-milling of rice is the chief factor in the production of this disease; and this vitamin deficiency theory is supported, not only by the results of animal experiments, but also by observations on outbreaks of the human disease. He further considers that the theory is supported by the result of preventive measures undertaken during the past ten years, and by the effects of food control on the incidence of the disease in Malaya. For the effective control of beri-beri the first essential is to ensure that a supply of under-milled rice is available as an ordinary market produce, and that it is sold at a price which enables it to compete with the over-milled variety. This should be accomplished by taxes on over-milled rice, inasmuch as an international convention to prohibit its production seems at present impracticable. On the whole he believes that education and propaganda methods amongst employers of labour and other classes in the community are the most effective means of combating this disease. W. A. Sawyer made a contribution on the advantages of international organisation for control of disease, with special reference to hookwork disease and beri-beri. He also advocates some international action with reference to the taxing of unsuitable rice. Apparently in Australia such a tax has long been in existence, having been instituted primarily to protect the milling industry in that country. With reference to hookworm disease, the campaign at present being conducted in Australia is described. An admirable review of recent work upon vitamins, which contains a few original observations, is contributed by M. Barrowcliff. It is hoped that the full Transactions, comprising nearly all the communications, in two volumes, will be published before the middle of 1924.

WE regret to announce the death of the well-known physiologist, Prof. Robert Tigerstedt, at Helsingfors on Dec. 2nd, in his seventieth year.

APPLICATIONS are invited for the office of Milroy Lecturer for 1925. The lectures have to deal with State medicine or public health, and carry an honorarium of 60 guineas. Suggestions are kept in print for the guidance of lecturers.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XLVIII.—THE TREATMENT OF PYELITIS.

THERE are many phases and varieties of inflammation of the renal pelvis, and the important preliminary to treatment is correct diagnosis. Cases in which the use of the cystoscope and the ureteral catheter are required are best treated by the urologist. Pyelitis may complicate pre-existing disease of the urinary tract, or may develop in a urinary tract free from disease. In the former case the infection is ascending, in the latter the source of infection lies usually in the bowel (colitis, chronic constipation, appendicitis, chronic dysentery, piles) or gall-bladder (gall-stones, cholecystitis), and the infection is hæmatogenous. Pyelitis is of special importance in infants and in pregnant women. The infection is most commonly due to the *B. coli communis*, present in pure culture. Pyelitis may be acute, chronic, recurrent, and quiescent or "silent."

The Acute Condition.

In acute uncomplicated pyelitis the onset is sudden, and the patient, who is seriously ill, is confined to bed and to the care of a nurse. A smart purge is administered either in the form of a pill containing mercury, colocynth, and hyoscyamus, or of a large dose of castor oil, followed by a saline. There has usually been a period of constipation or of diarrhœa before the onset of the attack, and during the acute stage of the pyelitis there is atony and distension of the large bowel, partly from the adjacent inflammation in the renal pelvis and partly from the fluid diet. After the purge a daily action should be ensured by means of senna, cascara, or some other vegetable laxative. Salines are unsuitable for continued use in these cases on account of the distension of the bowel they produce. A daily enema (soap and water) may be necessary, and washing the large bowel and the occasional use of a rectal tube may give much relief. There is often severe pain in the kidney, and there may be renal colic from descending ureteritis. Small doses of morphia may be necessary. In uncomplicated pyelitis the infection is unilateral, and since it does not involve the kidney there need be no hesitation, on account of the renal function, in giving morphia for pain. But the effect of the morphia on the bowel will limit its use to the most severe cases of pain. Hot fomentations, turpentine stupes, antiphlogistine, or linseed poultices will give much relief.

Diuretics are used in all cases. A diuretic water such as Vittel, Contrexéville, or Vichy, should be given and a definite quantity, such as one bottle (1 litre) or one and a half bottles, each 24 hours, prescribed. The water may be slightly warmed. Other diuretics may be used. Buchu tea, made by adding a tablespoonful of the dry leaves to a pint of boiling water in a teapot, and infusing for 15 minutes, and drunk hot, two pints in 24 hours, is a powerful diuretic, and should be used if the patient does not rebel on account of the taste. Parsley tea may also be prepared.

Alkaline treatment is the most effectual in the majority of cases of acute pyelitis, for the reaction of the urine is mostly strongly acid and the infection a pure culture of *B. coli*. Sod. bicarb. is the most powerful alkaliniser of the urine, but citrate and acetate of potash are efficient and are less unpalatable. The dose should commence with 10 gr. four-hourly until the urine is neutral or slightly alkaline, when the quantity is reduced to 10 gr. t.d.s., the reaction of the urine being kept neutral or slightly alkaline by varying the dose. The alkaline, combined with diuretic treatment, should continue until the temperature falls and the local symptoms subside.

Urinary Antiseptic Treatment.—The urinary antiseptics are the formaldehyde series (hexamine, urotropin, helmitol, &c.), salol, and boric acid. Boric acid has a moderate antiseptic action in the urine but upsets the digestion, and in acute cases is better avoided. Salol is most useful in cases with prominent bowel symptoms. It may be prescribed alone (10 gr., in cachet, t.d.s.) or combined with mercury and naphthol. Salol, 10 gr.; β naphthol, 5 gr.; and pulv. hydrarg. c. creta, 2 gr., is a useful combination.

The formaldehyde series of urinary antiseptics gives the most powerful antiseptic action in the urine. Hexamine (or urotropin) is absorbed, circulates in the blood-stream and is excreted by the kidneys, and when it comes in contact with the acid urine is split and formaldehyde given off. Hexamine should be taken in a large draught of water when the stomach is empty, so as to avoid the action of the acid gastric juice. It should not be combined with an acid (sodium acid phosphate), as formaldehyde is liberated in the mixture and indigestion will probably result. If the urine is neutral or alkaline, an acidifying drug should be given, such as sodium acid phosphate (30 gr. t.d.s.), and the dose increased until the urine becomes acid. Sodium acid phosphate should be given after food, but sodium benzoate may be combined with hexamine. The antiseptic and alkaline treatments are alternative and cannot be given together. The alkaline treatment should first be tried.

Diet should be mainly fluid, but if the patient can take Benger's or milk-pudding, the flatulence caused by excessive quantities of fluid may be avoided. Tea may be given, but not coffee; alcohol only for definite collapse or extreme weakness.

Vaccines are rarely of use in acute pyelitis, but during the acute stage an autogenous vaccine should be prepared ready for use when the attack is waning.

Relapses.—The patient or his friends must be warned of the common occurrence of relapses, especially on first getting out of bed or going downstairs. The patient should therefore be confined to bed for seven or ten days after the symptoms have disappeared and the temperature is normal, and the return to normal life should be gradual. In the pyelitis of infancy the high temperature may necessitate tepid or cold water sponging. In the pyelitis of pregnancy the uterus need only very rarely be emptied; catheterisation of the ureter on the affected side with lavage of the renal pelvis has, in some cases, a rapidly beneficial effect. This method has its risks in acute pyelitis, and should only be adopted after careful consideration.

In acute pyelitis constant watch must be kept for the enlargement of the kidney, which will indicate pyelonephritis, or if the urine suddenly clears, the pain increases, and the temperature assumes a swinging character, pyonephrosis has developed. In these cases operation, either nephrotomy or nephrectomy, will probably be required.

Ascending Pyelitis.—In acute pyelitis (ascending pyelitis), which is secondary to infection of the lower urinary tract, either recently produced by catheter, sound, or operation, or of long standing, the general treatment is identical with that already outlined. Surgical interference in the lower urinary tract is reduced to a minimum. If a stricture is being dilated, the passage of instruments is at once stopped; if a course of bladder washing for cystitis is in progress, this is discontinued. But where obstruction is present, provision must be made for drainage of the bladder. In an enlarged prostate, requiring the catheter, the instrument may be tied in the urethra; or if there are difficulties in the way of this or the cystitis is acute, a rapid suprapubic cystotomy with the introduction of a large tube (not a small self-retaining catheter) will be the best procedure. The object should be to retain free drainage with the minimum of interference.

Chronic, Relapsing, and Quiescent Pyelitis.

In chronic, relapsing, and quiescent pyelitis there is often difficulty in diagnosis. The local symptoms (pain and tenderness) may be slight or even entirely wanting. The symptoms are usually those of chronic cystitis, and the diagnosis is made by means of the cystoscope and ureteric catheter. In these cases

washing of the bladder, while it gives temporary relief from symptoms, has no effect on the source of the infection, and if too vigorously carried out, may actually be the exciting factor of an attack of pyelitis. Either antiseptic treatment or alkaline treatment may be tried, remembering that the antiseptic treatment is an attempt to destroy the bacteria, while the alkaline treatment only neutralises the acid toxin. The treatment is likely to be prolonged, and it is much better to interrupt it from time to time than to give a fixed dose of hexamine for an indefinite period. The patient should be warned of the chronic nature of the complaint, and the medicine prescribed in courses of four weeks at a time. During the course the dosage and the reaction of the urine should frequently come under review. The usual dose of 10 gr. of hexamine three times daily may cause irritation in some patients when the urine is highly acid. In this case the dose should be reduced to 5 or 3 gr., and if any acidifying drug (sodium acid phosphate) is being given, it should be omitted. In other cases the dosage may be increased to 12 or 15 gr. three times daily. Beyond this there is usually increased bladder irritation. The reaction of the urine must be definitely acid. If the urine is alkaline, acidifying drugs must be given with the precautions already mentioned. It is often helpful to give alternate courses of a month of the alkaline and the antiseptic treatment. Hyoscyamus, belladonna, and small doses of opium are useful for quieting bladder spasm and sandalwood oil is soothing to the mucous membrane.

Vaccine-Therapy.—The results obtained by vaccines in chronic pyelitis due to *B. coli* are often disappointing, but undoubted benefit often follows their use. The usual method is to commence with small doses of 3 or 5 millions of autogenous vaccine, and rise slowly by weekly injections to as high as 300 or 500 millions, reducing the dosage if a pronounced reaction follows an injection. Here again the value of repeated short courses is, I believe, greater than that of injections continued for an indefinite period.

Lavage of the Renal Pelvis.—In chronic and relapsing pyelitis, lavage of the renal pelvis is of great service. It is a method which, in the hands of the expert, is easy and carries little risk, but in the hands of the inexperienced is dangerous. It consists in introducing a fine catheter through the cystoscope along the ureter into the renal pelvis and injecting, by means of a small syringe, a small quantity of mild antiseptic into the renal pelvis, and allowing it to flow out. This injection is repeated a number of times, and the pelvis is finally emptied and the catheter withdrawn. No general anæsthetic is required unless in the most nervous of patients. After the lavage the patient should rest for a day in bed, unless well accustomed to instrumental manipulation when a rest of one or two hours may be sufficient. The fluids I most frequently use are silver nitrate solution (1 in 15,000), collosol argentum (½ or ¼ strength), oxycyanide of mercury (1 in 10,000). A course of six injections at fortnightly intervals should be tried, general treatment not being interrupted. Renal lavage is frequently but by no means invariably successful in curing the infection; distressing bladder symptoms may disappear, while bacteria persist in the urine, and the patient should be warned of the probability of a recurrence of symptoms. The presence of a quiescent calculus in, or dilatation of the renal pelvis, may cause persistence of pyelitis in spite of treatment. In a case of chronic or relapsing pyelitis the original source of the infection—for example, chronic constipation, colitis, chronic appendicitis, piles, diverticulitis, cholecystitis, and gall-stones—should be searched for and carefully treated, and cases cured after prolonged treatment may relapse from a reinfection from the bowel. On the other hand, I have met with pyelitis which followed too energetic washing of the large bowel in colitis. Treatment of these primary sources of infection should always form part of the treatment of pyelitis.

JOHN THOMSON-WALKER, F.R.C.S.,
Senior Urologist, King's College Hospital; Surgeon, St. Peter's Hospital for Stone, &c.

Special Articles.

THE GENERAL MEDICAL COUNCIL.

PENAL CASES.

THE winter session of the General Medical Council opened on Nov. 27th; Sir DONALD MACALISTER presided. His address appeared in THE LANCET of Dec. 1st. Nineteen penal cases came before the Council during the session. The cases were heard in public; the Council deliberated upon them in camera, and the decisions were publicly announced as usual. Two of these cases were forwarded by the Dental Board with the findings of the latter body. Four medical cases had been adjourned from previous sessions of the Council. Four names were erased from the Medical Register, and two names were erased from the Dentists Register. Three medical cases were withdrawn for various reasons; the remaining cases were briefly as follows:—

TUESDAY, NOV. 27TH.

The Case of Ernest Mayer.—This case was adjourned from the May–June session. E. Mayer (or E. Mayer Neville), registered as of Tynewydd Villa, Treherbert, Glam., was then found to have permitted posters printed at his expense to be exhibited at a colliery and in houses, inviting workmen desirous of choosing himself as their panel doctor to do so, and giving directions as to the means of effecting a transfer. A second charge, of giving implied or expressed consent to house-to-house canvassing carried out with the same intention, was found to be not proved. Testimonials with regard to Dr. Mayer's conduct in the interval were placed before the Council, and Dr. Mayer repeated his previously expressed regret. The Council did not see fit to direct erasure of his name from the Medical Register.

The Case of Patrick Joseph Honan.—P. J. Honan, registered as of 2, Glandore-park, Antrim-road, Belfast, had been convicted at the Surrey Assizes, held at Guildford on July 5th, 1923, of a felony—namely, of using a curette or other instrument with intent to procure a miscarriage, and had been sentenced to 18 months' imprisonment with hard labour. Dr. Honan attended in custody, and was represented by Mr. Conway, solicitor. It appeared that the relation between the practitioner and his patient was personal, not professional; at the assizes Mr. Justice Avory had stated that he was satisfied that the accused was not carrying on practice in the procuring of miscarriage for trade or reward. The woman in question had been seriously ill following the operation, but had recovered. The Council directed that the name of Patrick Joseph Honan be erased from the Medical Register.

The Case of James Reidy.—This case was adjourned from the November session, 1922. James Reidy, registered as of Gardenfield, Newcastle West, Co. Limerick, had been several times convicted between 1920 and 1922 of being drunk and incapable or disorderly. Letters of recommendation concerning his behaviour in the interval were read, and Mr. Reidy renewed his previously made undertaking to refrain from drink. The Council did not see fit to erase his name from the Medical Register.

The Case of David Charles Williams.—This case was adjourned from the May–June session. D. C. Williams, registered as of Brynfedwen, Treherbert, Glam., was found to have been guilty of a breach of the Council's notice with regard to "covering," having permitted an unregistered person (his "dispensary attendant") to practise in his presence as if he were registered in the Dentists Register. Dr. Williams had supported his assistant's claim to be so registered by a certificate in which he stated that the said assistant had performed "all operations usually entrusted to dentists." The Dental Board, however, had found that the assistant could claim only the status of a mechanic,

and had not admitted his name to the Register. The terms of Dr. Williams's certificate, therefore, laid him open to a charge of covering. The Council accepted, in place of the usual letters from members of the medical profession, statutory declarations from Dr. Williams and his dispensary attendant as to the latter's employment in the interval. The Council accepted Dr. Williams's assurances as to his desire to comply with every regulation called for by a high standard of professional conduct, and did not see fit to erase his name from the Register.

The Case of John Herbert Cecil Grene.—J. H. C. Grene, registered as of Bryn Issa, Bridge-street, Wrexham, was convicted, at the Broxton (Chester) Petty Sessions on May 29th, 1923, of driving a motor-car in a dangerous manner, and of being drunk in charge of the car, and fined on each count, his licence also being endorsed. The Council had in this case taken the unusual course of acting on a solitary conviction in view of the increasingly serious view taken by the law of drunkenness when in charge of a car. Dr. Grene maintained that he was not drunk. Letters from medical men and others were read testifying to Dr. Grene's character. Relying on his promise to abstain from alcohol in the future, the Council did not see fit to erase his name from the Medical Register.

The Case of Thomas Hill.—T. Hill, registered as of Derwen Deg, Pontlottyn, Glam., was convicted on August 14th, 1923, of being drunk in charge of a motor-car, and sentenced to one month's imprisonment in the second division. Dr. Hill was represented by Mr. G. O. Slade, his counsel, who stated that he considered the Council had no jurisdiction in this case, as the word "misdemeanour" in Section 29 of the Medical Act, in his submission, related only to indictable misdemeanours. After consultation with the Legal Assessor, the President overruled the objection. Dr. Hill was understood to have pleaded guilty at the police court on the advice of a solicitor, who counselled him to take this course in order to avoid publicity. He gave his word of honour that such a thing would not occur again. Relying on this promise, the Council did not see fit to erase Dr. Hill's name from the Register.

WEDNESDAY, NOV. 28TH.

The Case of Charles Gilroy King.—C. G. King, registered as of 1425, Pollokshaws-road, Glasgow, was convicted at the sheriff court of Lanarkshire, at Glasgow, on June 21st, 1922, of procuring drugs from a chemist and failing to supply prescriptions and to enter particulars of the said drugs or any portion thereof in a day-book or register kept for the purpose, contrary to the Dangerous Drugs Act, 1920, and regulations made thereunder, and fined £50 or 30 days' imprisonment, and convicted at the same court on June 25th, 1923, on a similar charge, receiving a similar sentence. These prosecutions had been undertaken by the Home Office, whose medical inspector had brought the facts to light. Part of the drugs procured had been dispensed to patients in an ordinary manner, but most of the supply went to Dr. King's wife, who was an addict; it appeared that Dr. King was completely under his wife's influence, and in spite of promises made after the first visit of the Home Office medical inspector, no better care was taken in respect of the registering of drugs. The Home Office authorisation under the Dangerous Drugs Act had been withdrawn from Dr. King, but no question arose as to his having attempted to traffick in these drugs. The Council considered that Dr. King had not fully apprehended his responsibilities under the Dangerous Drugs Act; judgment was postponed for 12 months, with the usual proviso as to unexceptionable behaviour in the interval.

The Case of George Denholm Darlington.—G. D. Darlington, registered as c/o Royal Bank, Hunter-square, Edinburgh, had been three times convicted at the Edinburgh police-court, between 1919 and 1923, of being drunk and incapable, and was twice fined. Mr. Darlington attended and addressed the Council on his own behalf. The Council directed that his name be erased from the Medical Register.

The Case of William Mortimer Sheen.—W. M. Sheen, registered as of Wycliffe House, Highfield-road, Saltley, Birmingham, was charged with having knowingly enabled a woman not certified under the Midwives Acts, 1902 and 1918, to attend 17 cases of women in childbirth under cover or pretence that such women were attended to or to be attended by him or under his direction, and with having in many of these cases signed maternity benefit certificates and given notifications of birth, thereby enabling the woman in question to practise as though she were certified under the Acts. The complainants were the Birmingham City Council. Dr. Sheen was accompanied by Mr. J. P. Eddy, his counsel, who stated on behalf of his client that the latter, who had a panel of some 3000 patients, was grossly overworked at the time of the events in question, and was unwell. He stated that the Midwives Act, 1902, had never been judicially construed until April of this year, and few medical men knew its real meaning; but that, having regard to the recent decision in April last, his client now saw that he had not acted correctly, and desired to express his great regret. The Council found Dr. Sheen to have been guilty of infamous conduct in a professional respect, and directed that his name be erased from the Medical Register.

The Case of John Christie Forbes.—J. C. Forbes, registered as of 40, Mayfield-road, Edinburgh, was charged with having permitted his female clerk to sign in his name and to issue certificates required for National Health Insurance purposes, in which certificates it was stated that he had examined the patient, although in many cases he had not done so; and with having permitted the clerk on several occasions to sign and issue orders for prescriptions for an insured person. Dr. Forbes was represented by Mr. W. G. Manson, his counsel, who submitted that the action of his client did not amount to infamous conduct in a professional respect; that no moral turpitude was attributable to Dr. Forbes, who had merely committed a technical breach of the National Insurance Acts, which he much regretted, and which would never occur again. The Council found that the facts alleged against Dr. Forbes had been proved to their satisfaction, and that the certificates in question were given in a lax and careless manner, and were in effect inaccurate, misleading, and improper. The President emphasised the gravity of laxity in the giving of such certificates, and announced that the Council had decided to postpone pronouncing judgment until the May session, 1924, with the usual proviso as to correct behaviour in the interval.

THURSDAY, NOV. 29TH.

The Case of Walter Wiglesworth.—W. Wiglesworth, registered as of Mendip Lodge, Farncombe, Surrey, had been three times convicted at the Westminster, Bow-street, and Marylebone police-courts between 1913 and 1923 of being drunk and disorderly, and fined. Dr. Wiglesworth addressed the Council on his own behalf, stating that he very seldom drank stimulants, that very little alcohol excited him, and that he had lately had serious anxiety in the shape of domestic bereavement and financial loss. He gave an assurance that he had determined to refrain from alcohol for the rest of his life. The President, in announcing the decision of the Council, pointed out the danger of the habit indicated by the convictions, and announced that the Council, accepting Dr. Wiglesworth's assurance, did not direct his name to be erased from the Medical Register.

The Case of John Richard Griffith.—J. R. Griffith, registered as of Argoed, Mon., was charged with having employed as his assistant one Frederick A. Cotton in connexion with his practice, a person not qualified or registered under the Medical Acts, and with having knowingly allowed this assistant to attend, on his behalf, and treat patients in respect of matters

requiring professional discretion or skill, and to sign and issue on his behalf insurance medical certificates. The complainants were the London and Counties Medical Protection Society, represented by Mr. Carthew. Dr. Griffith attended, and was defended by Mr. Bernard Campion, K.C., and Mr. A. T. James. Mr. Carthew stated that the principal witness for the complainants, Mr. Cotton, Griffith's assistant, had died the day after making his statutory declaration. Mr. Campion said that Dr. Griffith's case depended largely on the cross-examination of that witness, but that he would not raise any technical objection to the case proceeding. Mr. Cotton's declaration was then read. It stated that Mr. Cotton had been a dispenser for 12 years, and was engaged by Dr. Griffith between October, 1919, and April, 1923. He alleged that soon after entering his service Dr. Griffith asked him to see patients on his behalf, and presently he was accustomed to examine patients and to sign certificates in Dr. Griffith's name. Dr. Griffith had an insurance list of some 1300 persons, as well as a private practice. The majority of the patients believed him (Mr. Cotton) to be a medical man. Various witnesses were called in support of this declaration, and some were cross-examined. Dr. Griffith, in evidence, said that Mr. Cotton was in his service as surgery dispenser for three and a half years. In April, 1923, Cotton gave him a month's notice, but afterwards desired to come back into his service, and when he would not re-engage him certain anonymous and other letters followed, leading up to the present charge. He emphatically denied that Cotton ever took part in any operation requiring special skill or professional knowledge, or that Cotton had treated or attended for the purpose of treating any patient with his approval. He had employed Cotton to make inquiries as to how patients were going on; he would himself call if Cotton's report made it appear necessary. Cotton took temperatures, but he never allowed him to see a case which he had not first seen himself. Dr. Griffith's case-books were closely scrutinised by the Council, and he was asked many questions relating to the attendance on specific cases. The Council found that the facts alleged against Dr. Griffith had not been proved.

FRIDAY, NOV. 30TH.

The Case of Trevor Owen Williams.—T. O. Williams, registered as of 4, Ullet-road, Liverpool, had in 1917, when a captain in the Royal Army Medical Corps, been court-martialled, found guilty of drunkenness whilst on active service overseas, and dismissed from His Majesty's Service; had, in 1922, been reprimanded by a judge for being drunk whilst giving evidence; and had, in 1923, at the Liverpool police-court, been convicted of being drunk and disorderly, and fined. This case was adjourned from the November session, 1922, when Dr. Williams gave to the Council a solemn undertaking to refrain from drink for the rest of his life. Dr. Williams did not appear in answer to the Council's notice, and Mr. Harper, the Council's solicitor, read a letter from the Commissioner of the Salvation Army at Liverpool, in which it was stated that Dr. Williams had placed himself in the hands of the Salvation Army with the intention of overcoming his tendency to drink. The commissioner, writing with experience of many similar cases, asked for a further postponement of this case for a period of six months. The Council, in view of the intervention of the Salvation Army, regarded the case as exceptional and adjourned consideration thereof till the May session, 1924.

The Case of Charles Harold Bennett.—C. H. Bennett, registered as c/o P. Turner, 4, Adam-street, Adelphi, had between 1913 and 1923 been seven times convicted of drunkenness in Liverpool, Uxbridge, and London. Dr. Bennett did not appear in answer to the Council's notice, although the Council's solicitor had repeatedly attempted to induce him to do so. The Council directed that his name be erased from the Medical Register.

Cases Forwarded by the Dental Board.

Two cases were forwarded by the Dental Board with recommendations to the Council that the names of the dental practitioners concerned should be erased from the Dentists Register. *Stuart Christopher Nicoll*, registered as of 28, High-street, Newport, Mon. ("Dentist, 1921"), was convicted of theft at the borough police-court, Newport, in 1923, and sentenced to two months' imprisonment with hard labour. *Thomas William Cook*, registered as of 356, Walworth-road, London, S.E. ("Dentist, 1921"), was convicted in 1923 at the County of London sessions, of receiving property, knowing the same to have been stolen, and sentenced to six months' imprisonment in the second division. The Council directed that the names of these two practitioners be erased from the Dentists Register.

PRELIMINARY MEETING OF THE EXECUTIVE COMMITTEE.

At the meeting of the Executive Committee on Nov. 26th, before the commencement of the public session, the PRESIDENT read a letter from Sir Gilbert Barling stating that he was unable to be present owing to duties as a returning officer at the General Election. Among the items of business were the following:—

Reappointment of Members of the Council.

The official notification of the reappointment of the following members of the Council was read: Dr. Edward Magennis (Apothecaries' Hall of Ireland) for one year from August 1st, 1923; Sir John Moore (Royal College of Physicians of Ireland) for one year from Oct. 18th, 1923; Dr. Denis J. Coffey (National University of Ireland) for three years from July 30th, 1923; Dr. J. B. Leathes (University of Sheffield) for three years from Oct. 27th, 1923.

Restorations to the Medical Register.

The REGISTRAR reported the restoration of the names of the undermentioned persons to the Medical Register:—

Edgar Annequin, Henry C. Beasley, Emanuel O. Beckley, Thomas A. P. Benbow, Nadir N. Bharucha, Frederick M. Bishop, Johannes K. J. Chambry, Yun Ying Chen, William J. Corbett, Wilfred A. Dewhirst, Hedley V. Drew, Alexander E. Drynan, Vincent C. Ellis, Reginald C. H. Francis, John J. Glynn, Alfred Golland, Henry C. Goodman, George W. Graham, John H. G. Hunter, Ramchander Kaushosh, Denis J. Keane, James I. Keating, Charles G. King, James Lee, Angus C. Livingston, Joseph J. Long, George W. Matthews, James J. F. Moriarty, Frederick P. Ransom, Lionel M. Rowlette, Elsie M. Royle, Frederick L. Sessions, Andrew F. Sinclair, James W. Sinclair, Emile H. Smith, Arthur F. Stewart, Thos. G. G. Symons, Sydney A. Tucker, Jerry Whitehead, Gomer Williams, John E. Williams, Charles W. Wilson.

British Medical Practitioners in Greece.

Correspondence had passed between the Committee and the Foreign Office and the Ministry of Health with regard to a Bill (enacted in 1922) giving the Greek Government the right to prohibit at any time by Royal Decree the practice of medicine or dentistry in any district in Greece by foreigners, and a decree, formulated under that Bill, prohibiting such practice. The Foreign Office had been informed that the Committee knew of no grounds on which a protest could be entered against the Bill, provided the rights of British practitioners now practising under Greek jurisdiction were safeguarded. The Ministry had been informed that as the authorities in Greece demand that medical practitioners desiring to practise in that country should be naturalised, there appeared to be no prospect of the establishment of reciprocal relations in regard to medical practice between the two countries. It was pointed out that a Greek entitled to practise medicine in Greece might act as physician at a hospital established exclusively for the relief of foreigners in sickness, provided that he engaged in no other medical practice in Great Britain. Further correspondence had passed

between the Committee and the Privy Council relating to the case of a practitioner who went to Greece in 1919, attached to the Commission of Reconstruction, and was permitted to practise in the British and American colonies there. He was also medical inspector of the refugee camps under the direction of the Greek Red Cross. The Committee hoped that in these circumstances the authorities in Greece would be able to make such dispensations as would enable this practitioner to continue the work that he was doing.

British Medical Practitioners in Turkey.

The Privy Council had sent for the consideration of the Committee a copy of a despatch regarding the conditions under which foreign doctors may now practise in Turkey. The Lausanne Treaty has allowed the right of the exercise of the profession of medicine in Turkey only to doctors who are Turkish subjects and are furnished with a Turkish diploma. In accordance with these regulations foreign doctors will not be permitted to exercise their profession in Turkey. However, the right of exercise will be respected in the case of doctors who possess permits granted before the war after undergoing examination before the Committee ad hoc.

Foreign doctors practising in Turkey who have Turkish permits or diplomas and have delayed to register were required to present themselves to the Health Direction before Nov. 15th, and show their documents. Foreign doctors who have no Turkish diplomas or permits may now no longer practise their profession, and pharmacists are forbidden to make up the prescriptions of doctors who are not authorised to exercise their profession. Foreign doctors working in hospitals or dispensaries created before the war are also bound to submit to the same conditions. Hospitals and dispensaries opened since the war, but not possessing any recognised official character, were authorised to continue working till Nov. 15th, after which they were to be closed. His Majesty's High Commissioner and his Allied colleagues have addressed an identical note protesting against the despatch, in which they point out that it is in flagrant contradiction to, and clearly constitutes a violation of Article 4 of the Convention d'Etablissement signed at Lausanne between Turkey and the British Empire on July 24th last. It is added that the Turkish sanitary authorities state that all Red Cross institutions are to be closed, and it is possible that the British Seamen's Hospital might also be affected. The Committee resolved to send a reply to the Privy Council on similar lines to that sent in regard to Greece.

British Medical Practitioners in Italy.

An Italian Royal Decree of March 25th, 1923, reads as follows: "Italian subjects and foreigners who have duly obtained a professional diploma in an institute of a foreign State can also be inscribed, when such State has *come to a special agreement* with the Italian Government on the basis of absolute reciprocity of treatment for Italian subjects holding Italian diplomas." In answer to a request for information on this matter received from the Ministry of Health, it had been stated that, as complete reciprocity in regard to medical practice was established with Italy in March, 1901, and confirmed by Italian legislation of date June, 1910, it did not appear that the new regulations affected Great Britain.

OTHER BUSINESS.

Removal of Name from Medical Register at Practitioner's Own Request.—The Executive Committee having considered an application from Dr. Joseph McDonnell, registered as of Roscommon (L.R.C.S., L.R.C.P. Edin. 1864, L.M. 1879), to have his name removed from the Medical Register on the ground of having ceased to practise, the Council, on Tuesday, Nov. 27th, accepted the Committee's recommendation that the name be removed with the knowledge and consent of Dr. McDonnell, and directed that this be done.

Alteration of Personnel of Committees.—On Thursday, Nov. 29th, the Council agreed to a resolution by the Irish Branch Council to the effect that Dr. Kidd should replace Sir Edward Coey Bigger on the Education Committee, and that Sir Edward Coey Bigger should replace Dr. Kidd on the Examination Committee.

Reports of Committees.

The following reports were considered on Friday, Nov. 30th.

Dental Education and Examination Committee.—Sir James Hodsdon (chairman) presented this report to the Council. The report stated, inter alia, that the inspector had been present at three examinations, and one report from a body examined had been received, but that the Committee proposed to postpone the publication of the report until the inspection was completed. Six colonial and foreign applications for registration in the Dentists Register had been received, and it was recommended that four of these be acceded to. With regard to Japanese dentists duly registered in London, in 1918 diplomas of Doctor of Dental Surgery granted by the Nihon Dental College and the Tokyo Dental College were recognised as admitting to the foreign list of the British Register; in the light of a communication received from the Japanese Embassy in London, the Committee recommended that such recognition be extended to the degree of Bachelor of Medicine in the Dental Division of the Tokyo Imperial University, and to the degrees of Bachelor of Dental Surgery of the Osaka, Tokyo, and Nihon professional schools of Dental Surgery.

The report was received and its recommendations adopted by the Council.

Education Committee.—This report was presented by Dr. J. Yule Mackay (chairman). An application had been received from the Pharmaceutical Society for the recognition of their preliminary examination for the purposes of the registration of medical students. It was stated that a considerable number of pharmaceutical chemists took up medical studies at an age long past school age. The Committee resolved that this examination could only be recognised provided it was accepted by one of the English universities in lieu of their entrance or matriculation examination. The Committee had also considered the minimum age at which it was advisable to admit persons of mature years to matriculation under exceptional conditions, and resolved that it was desirable that the age of 21 years should be regarded as the minimum age at which a medical student should be admitted to matriculation under exceptional conditions.

The report was received and its recommendations adopted by the Council.

Pharmacopœia Committee.—This report was presented by Sir Nestor Tirard. The number of copies of the British Pharmacopœia, 1914, sold by the publishers between May 28th and Nov. 26th, 1923, was 1351 copies against 2297 copies sold in the previous year. The total number sold since the date of publication was 45,788. The Committee had considered a communication from the Privy Council, submitting for consideration and observations a draft of an Order in Council under the Dangerous Drugs Act, setting out particulars to be stated on the label of preparations containing poisons: (*a*) In the case of articles to be exported from Great Britain by wholesale dealers or sales by wholesale or retail dealers in the ordinary course of wholesale dealing with the name of the poison, and in the case of a preparation which contains a poison as one of the ingredients thereof, with such particulars as to the proportion which the poison contained in the preparation bears to the other ingredients as may be prescribed by Order in Council; and (*b*) in the case of all other sales in addition to the foregoing particulars with the name and address of the seller of the poison. The Committee agreed to reply to the effect that there did not appear to be anything in the draft to which the Council would take exception, provided that it should be made clear that medicines supplied to a patient by or on the

prescription of a duly qualified medical practitioner are not affected by the new Order. The Committee also considered a communication from the Privy Council enclosing a draft proposing certain changes in the Schedule of Poisons appended to the Pharmacy Acts, and agreed to reply that the proposed changes were desirable, but made verbal suggestions for the sake of greater clearness.

Public Health Committee.—This report, presented by Sir John Moore (chairman), dealt with business transacted since the previous meeting of the Council in May and June, 1923. The Committee had been asked by the Director of Medical Services, General Headquarters, Parkgate, Dublin, whether Rule 3 of the Resolutions and Rules for Diplomas in Public Health now in force (which rule provided that a certificate might be given by a sanitary staff officer of the Royal Army Medical Corps having charge of an army corps, district, command, or division recognised for the purpose by the General Medical Council) could be made to apply to the Assistant Director of Medical Services i/c Sanitation, Irish Free State Army, and to the Commandant i/c School of Sanitation, Curragh Camp, so that a number of officers might be able to take their D.P.H. lectures this year. The Committee recommended that certificates under Rule 3 might be given by the two officers in question until Jan. 1st next, when the new Rules come into force. In accordance with a recommendation of the Public Health Committee, adopted by the Council on June 2nd, 1923, a letter had been addressed to the English Conjoint Board on June 7th, 1923, asking for further particulars in regard to exemptions granted to two candidates for the Diploma in Public Health. A reply from the Conjoint Board, dated June 28th, 1923, had cleared up the matter, and the Committee recommended that the answer of the English Conjoint Board be accepted, but they also recommended that in future no exemption to the rules for the Diploma in Public Health be granted except by the General Medical Council.

The report was received, and its recommendations adopted by the Council.

The proceedings of the session closed on the afternoon of Friday, Nov. 30th.

CRIME AND INSANITY

IN THE LIGHT OF THE REPORT OF LORD JUSTICE ATKIN'S COMMITTEE.

THERE is much that is satisfactory in the report [1] (briefly summarised in THE LANCET last week) of the Committee appointed to consider the law, practice, and procedure of criminal trials in which insanity is pleaded. It should reassure the public, for it reaches the conclusion that "to the insane person justice is done." The Committee says it could discover no case in which a miscarriage of justice had taken place in the execution of an offender. Another matter for satisfaction is the fact that the views of the medical profession have been fully stated to, and fully studied by, the Committee, and that they have had some effect upon the findings. On the major issues raised by the inquiry it might roughly be stated that on one point the law is prepared to correct itself; on two points it adopts the medical view; and elsewhere it stands firm. The report is at pains to show how little the legal and the medical view really differ. At any rate it leads to a better understanding if each side makes its position clear to the other. The recommendations of the Committee are printed below, together with a statement of the rules in McNaghten's case, to which reference will presently be made. It is perhaps needless to point out, firstly, that the Committee was not a Royal Commission representative of all shades of opinion, but was a body of experts in criminal law and its administration, a body composed of strong judicial, forensic, and Home Office elements; secondly, that lawyers proceed cautiously in matters of this kind; and thirdly, that no judge is bound by any of the Committee's findings; some of them will require legislation, but of this we are not likely to hear for some months.

[1] Cmd. 2005, H.M. Stationery Office. Price 6*d*.

Verdict "Guilty but Insane" to be Corrected.

The point upon which the law is prepared to correct itself arises out of the irrational verdict "guilty but insane." The word "guilty" means criminally responsible, yet the verdict means criminally irresponsible. It is thus a contradiction in terms. The explanation is this. Down to 40 years ago the nineteenth century jury could give a verdict of acquittal on the ground of insanity. In 1882 Roderick Maclean fired a loaded pistol at Queen Victoria, was tried for high treason, and, being in the usual way found "not guilty but insane," was ordered to be detained during Her Majesty's pleasure. The Queen, as Mr. Lytton Strachey has recounted, could not understand the verdict. How could Maclean be "not guilty" when she had seen him fire the pistol herself? If that was the law, the law must be altered, and altered it accordingly was. In 1883 Parliament changed the form of verdict; thereafter juries could find a man like Maclean guilty of the act charged, but insane at the time when he did it. This verdict, which gradually became abbreviated to "guilty but insane," the Committee's third recommendation proposes to correct. If Parliament agrees, the future verdict will be that the accused did the act, but is not guilty because he was insane (so as not to be responsible according to law) at the time. It may be added here that both the British Medical Association and the Medico-Psychological Association pressed for a right of appeal against verdicts of this nature. The Committee rejects the idea. It treats such a verdict as a decision in favour of the accused, a verdict which haa been invited on his behalf. Criminal law does not contemplate that a prisoner shall appeal from a decision which is in his favour. If there were such an appeal, the only result would be that he would have to be sentenced or else re-tried on the issue (which would not really be in dispute), whether or not he did the act alleged.

On two points, it has been stated above, the Committee adopts the medical view. There has been a feeling on the medical side that the medical expert in giving evidence in criminal trials is hampered in stating his conclusions. The Committee, without formulating this as one of its recommendations, observes: "We think that a wise discretion would allow all necessary expert evidence as to the general mental condition as a preliminary to evidence directly bearing on the ultimate legal issue raised by the plea." The second point on which the legal view gives way is in respect of acts committed under uncontrollable impulse. The Committee considers that the McNaghten rules (which in all other respects it desires to retain unchanged) are a formula "not logically sufficient" in such cases. It considers it should be made clear that the law does recognise irresponsibility on the ground of insanity where the act was committed under an impulse which the prisoner was, by mental disease, in substance deprived of any power to resist. This view forms the first of its recommendations. How great a concession to medical opinion it represents may be apparent to those who heard the cautious observations of the Lord Chief Justice on this point at THE LANCET Centenary dinner (see p. 1269).

Lessons of the McNaghten Trial.

The rules in McNaghten's case, to which this addition is proposed, otherwise explain themselves. It may be worth while, however, to dwell a little upon the facts of that famous trial. Daniel McNaghten was a man with a good head for business, who, to many people, displayed few signs of abnormality. But he got an impression that he was persecuted by the Tories, and so, after hanging about Whitehall and the Houses of Parliament for several days in 1843, he shot Edward Drummond, private secretary to Sir Robert Peel, in the street opposite Charing Cross, apparently mistaking him for Sir Robert Peel himself. To realise the humaneness of his trial in 1843, it is only necessary to go back a generation earlier to that

of Bellingham who, in somewhat similar circumstances, shot the Prime Minister in the lobby of the House of Commons. Bellingham had been a Liverpool merchant in the Russian trade. He had been imprisoned in Russia for debt, got an impression that the British representatives in that country had not been helpful enough, brought his grievance home to England, where he freely advertised it, and finally shot Mr. Perceval, the Prime Minister, on Monday, May 11th, 1811. He was tried at the Old Bailey on the following Friday. Evidence was offered that his father had died insane, and the names of witnesses were mentioned who could testify to the madness of the son. The court would not wait to hear them. Bellingham was convicted and sentenced, and on the following Monday, within a week of his offence, he had been hanged and his body lay exposed upon the dissecting table. His hurried fate aroused no compassion in a public which was indignant at his crime. With such intemperate haste let us contrast the trial of McNaghten in 1843. When his case came on, a fortnight after the murder of Drummond, a month's postponement was at once granted in order that evidence of the unsoundness of his mind might be collected. Eventually, important evidence was produced; he was brilliantly defended by Cockburn; nine medical witnesses were called, who were permitted to give their own conclusions from the facts proved, unrestrained by any idea that they might thereby be usurping the functions of the jury. The prosecution had no rebutting medical evidence; the two medical experts employed by the Crown entirely agreed with those called for the defence; the Chief Justice, obviously impressed by the number and unanimity of the doctors, stopped the case, and the jury returned a formal verdict of "not guilty on the ground of insanity." The ease of McNaghten's escape from the gallows took the country rather aback. The public grew a little restive and frightened. The Law Lords expressed the view that it was a pity that the case was not fully tried. Thereupon the Lord Chancellor took the opinion of the judges, and thus there came into being the famous questions and answers known as the Rules in McNaghten's case (printed below). Subsequently, public feeling became more tranquil. It was seen that the acquittal was not unreasonable, and thus contemporary medical opinion obtained a considerable victory. Medical knowledge, of course, has made much progress since 1843, but these details have been recalled to show how admirably humane and how modern in its spirit was this famous trial of 80 years ago.

Conflict of Medical and Legal Views.

Comment might be made on other aspects of the recent inquiry. The main point on which the lawyers stand fast is their conviction that a man may be insane and yet may be criminally responsible. The medical profession approaches this position from another angle. To medical science a man who is to-day a certified lunatic may for a long while have been in a morbid condition, exhibiting symptoms which the ultimate insanity explains to have been merely successive stages of the same mental disease. In relation to crime the lawyers declare this to be too wide, too uncertain a conception of insanity. They want to be able to make the reservation that in the earlier stages of these symptoms the man may have been "affected by every motive for committing or abstaining from committing a criminal act that would be likely to affect a person of sound mind and in substantially the same degree." The medical view, according to the lawyers, tends to say that any unsoundness of mind means criminal irresponsibility; this "would introduce so much uncertainty into the administration of the criminal law as to create a public danger." The apprehensions of the criminal lawyers are perhaps natural. The Home Office and the Director of Public Prosecutions can hardly be expected to agree with those who assert that crime itself is a symptom of insanity. To alienists the assertion may be a truism; to those responsible for administering the criminal law it is a startling paradox. But though the latter insist that an insane person may be criminally responsible, though high authorities like Sir Herbert Stephen would even be prepared in certain cases to leave a lunatic to be hanged, it must be remembered that in practice they are merciful if in theory they are severe. Every death sentence in England seems automatically to find its way into the Court of Criminal Appeal on the ground of insanity if no other ground is available. And at any rate in the case of McNaghten (as perhaps in that of Ronald True) the administration of the law was in advance of the popular standards of the day. In the face of this fact medical opinion must not be too impatient if the law moves slowly.

The Committee's Recommendations.

The following are the recommendations of the Committee:—

1. It should be recognised that a person charged criminally with an offence is irresponsible for his act when the act is committed under an impulse which the prisoner was by mental disease in substance deprived of any power to resist. It may require legislation to bring this rule into effect.

2. Save as above, the rules in McNaghten's case should be maintained.

3. Where a person is found to be irresponsible on the ground of insanity, the verdict should be that the accused did the act (or made the omission) charged, but is not guilty on the ground that he was insane so as not to be responsible, according to law, at the time. The existing statutory provision in this respect should be amended.

4. Until such amendment, the verdict should always be taken and entered as guilty of the act charged, but insane so as not to be responsible, according to law, for his actions at the time.

5. Accused persons should not be found on arraignment unfit to plead except on the evidence of at least two doctors, save in very clear cases.

6. The present law as to appeal should not be altered—i.e., there should be no appeal on the finding of insanity either on arraignment or after trial and, in the latter case, either as to the act or omission, charged or as to insanity.

7. Provision should be made, under departmental regulations, for examination of an accused person by an expert medical adviser at the request of the prosecution, the defence, or the committing magistrate.

8. Provision for a panel or panels of mental experts is unnecessary.

As to the Criminal Lunatics Act, 1884.

9. It is essential that the statutory power under section 2 (4) should be maintained.

10. The procedure under the sub-section is satisfactory and does not require amendment.

11. The discretion of the Secretary of State should be exericsed as at present.

RULES IN MCNAGHTEN'S CASE (1843).

Rule 1.

Question.—"What is the law respecting alleged crimes committed by persons afflicted with insane delusion in respect of one or more particular subjects or persons: as, for instance, where, at the time of the commission of the alleged crime, the accused knew he was acting contrary to law, but did the act complained of with a view, under the influence of insane delusion, of redressing or revenging some supposed grievance or injury, or of producing some supposed public benefit?"

Answer.—"Assuming that your lordships' inquiries are confined to those persons who labour under such partial delusions only, and are not in other respects insane, we are of opinion that notwithstanding the accused did the act complained of with a view, under the influence of insane delusion, of redressing or avenging some supposed grievance or injury, or of producing some public benefit, he is nevertheless punishable, according to the nature of the crime committed, if he knew at the time of committing such crime that he was acting contrary to law, by which expression we understand your lordships to mean the law of the land."

Rules 2 and 3.

Question 2.—"What are the proper questions to be submitted to the jury where a person alleged to be afflicted with insane delusion respecting one or more particular

subjects or persons, is charged with the commission of a crime (murder, for example), and insanity is set up as a defence ? "

Question 3.—" In what terms ought the question to be left to the jury as to the prisoner's state of mind, at the time when the act was committed ? "

Answers 2 and 3.—" As these two questions appear to us to be more conveniently answered together, we submit our opinion to be that the jury ought to be told in all cases that every man is to be presumed to be sane, and to possess a sufficient degree of reason to be responsible for his crimes, until the contrary be proved to their satisfaction ; and that to establish a defence on the ground of insanity it must be clearly proved that, at the time of committing the act, the accused was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing, or, if he did know it, that he did not know he was doing what was wrong. The mode of putting the latter part of the question to the jury on these occasions has generally been, whether the accused at the time of doing the act knew the difference between right and wrong ; which mode, though rarely, if ever, leading to any mistake with the jury, is not, as we conceive, so accurate when put generally and in the abstract, as when put with reference to the party's knowledge of right and wrong, in respect to the very act with which he is charged. If the question were to be put as to the knowledge of the accused solely and exclusively with reference to the law of the land, it might tend to confound the jury, by inducing them to believe that an actual knowledge of the law of the land was essential in order to lead to a conviction : whereas, the law is administered upon the principle that every one must be taken conclusively to know it, without proof that he does know it. If the accused was conscious that the act was one that he ought not to do, and if that act was at the same time contrary to the law of the land, he is punishable ; and the usual course, therefore, has been to leave the question to the jury, whether the accused had a sufficient degree of reason to know that he was doing an act that was wrong ; and this course we think is correct, accompanied with such observations and explanations as the circumstances of each particular case may require."

Rule 4.

Question.—" If a person under an insane delusion as to existing facts commits an offence in consequence thereof, is he thereby excused ? "

Answer.—" The answer must, of course, depend on the nature of the delusion ; but making the same assumption as we did before, namely, that he labours under such partial delusion only, and is not in other respects insane, we think he must be considered in the same situation as to responsibility as if the facts with respect to which the delusion exists were real. For example, if, under the influence of his delusion he supposes another man to be in the act of attempting to take away his life, and he kills that man, as he supposes, in self-defence, he would be exempt from punishment. If his delusion was that the deceased had inflicted a serious injury to his character and fortune, and he killed him in revenge for such supposed injury, he would be liable to punishment."

Rule 5.

Question.—" Can a medical man, conversant with the disease of insanity, who never saw the prisoner previously to the trial, but who was present during the whole trial, and the examination of the witnesses, be asked his opinion as to the state of the prisoner's mind at the time of the commission of the alleged crime, or his opinion whether the prisoner was conscious at the time of doing the act that he was acting contrary to law, or whether he was labouring under any, and what, delusion at the time ? "

Answer.—" We think the medical man, under the circumstances supposed, cannot, in strictness, be asked his opinion in the terms above stated, because each of those questions involves the determination of the truth of the facts deposed to, which it is for the jury to decide, and the questions are not questions upon a mere matter of science, in which case such evidence is admissible. But where the facts are admitted, or not disputed, and the question becomes substantially one of science only, it may be convenient to allow the question to be put in that general form, though the same cannot be insisted on as a matter of right."

OLD CHURCH HOSPITAL, ROMFORD.—An operating theatre constructed on up-to-date principles was opened at this hospital on Nov. 29th. It has been built at a cost of £1970, and is situated at the back of the nurses' home. The medical superintendent, Dr. W. S. O'Loughlin, said that a new theatre had long been required. Mr. A. H. Todd paid a tribute to the nursing staff, and Dr. J. G. McDougall and Dr. J. A. Fraser also spoke.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

FOLLOWING are some of the principal health statistics of three cities and two county boroughs for 1922 :—

Town.	Estimated population (R.-G.).	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Respiratory with influenza.	Infant mortality		Maternal mort. in childbirth.
							Legit.	Illegit.	
Bristol	383,900	19·9	13·3	1·3	1·2	3·0	72	116	2·9
Newcastle ..	281,600	24·8	14·2	1·5	1·1	4·2	91	118	4·0
Salford	240,700	22·1	14·6	1·6	1·1	4·4	109	141	3·5
Cardiff	203,700	21·6	13·2	1·5	1·0	3·7	79	169	6·1
Sunderland ..	162,900	28·6	15·7	1·3	1·3	5·2	99	287	3·2

Bristol.

Dr. D. S. Davies comments on the deficiency of the isolation hospital accommodation. The extension scheme approved in 1914 has never yet been carried out. There are only 240 beds and during times of pressure the guardians and general hospitals have given assistance. The excessive prevalence of encephalitis lethargica, resulting in an aggregate of 108 cases between Jan. 1st, 1919, and Sept. 30th, 1921, did not continue during 1922, during which year there were 8 cases and 4 deaths. The report of Dr. Allan C. Parsons to the Ministry of Health (1922), quoted by Dr. Davies, does not suggest that the behaviour of this disease in Bristol was exceptional. The three home nurses, appointed in February, 1919, under the provisions of the Maternity and Child Welfare Act, 1918, have been found useful in checking both measles and diphtheria epidemics. Dr. Davies thinks that their efforts in carrying nursing aid and instruction to the mothers in the diphtheria epidemic, which reached its height in December, 1921, in the well-populated Bedminster district, were most valuable.

The report includes an interesting dissertation on tuberculosis, with a chart dealing with the ten years 1913–22, which indicates the prevalence in Bristol of the " young adult " type of pulmonary tuberculosis. The council have approved of arrangements for the provision of 60 beds for surgical tuberculosis in children at Lord Mayor Treloar's Hospital and of 100 beds at Frenchay, but both these schemes have been delayed by the Ministry on the plea of economy.

Repair work in housing has been encouraged by somewhat lower prices. " Gross overcrowding is far too rife," says the chief housing inspector, " and it is useless to take any action." " The absence of houses is a very serious handicap for young people," he continues, " if they have to start their married life in a bed-sitting room in an already overcrowded house. The bottom drawer is not required to-day. The common occurrence of births taking place in the presence of other members of a family has ceased to shock, and, on the grounds of morality and decency, prompt steps should be taken to overcome all obstacles." Comments are made on the unworkable nature of Section 28 of the Housing Act of 1919, which was intended to facilitate the renovation of houses. Dr. Davies sums up the situation by saying : " No real solution of the housing difficulty will be found until circumstances permit the unrestricted re-establishment of private endeavour, so that supply may follow demand."

Newcastle-upon-Tyne.

Dr. Harold Kerr thinks unemployment benefit and the National Health Insurance Act have proved very

important public health measures during the industrial depression. Unemployment figures for the city improved as industry recovered from the effects of the coal strike of 1921, but after May, 1922, the conditions became worse, and at the end of the year there were 19,500 men and 1200 women idle. Atmospheric pollution showed an improvement on 1921, but this may have been due to trade depression. Dr. Kerr comments on the increase in deaths from diseases of the heart and blood-vessels, and thinks this may be partly due to the saving of life at earlier ages. Cancer, on the other hand, has shown no definite tendency to increase in Newcastle during the last 15 years. Diseases of the digestive system were less fatal in 1922, as they were in 1918, and Dr. Kerr suggests that shortage of money in 1922 and the limited choice of dietary in 1918 had similarly beneficial effects in restricting the population to plain and wholesome food. The influenza epidemic struck the city with great suddenness about Jan. 4th, was extremely prevalent during January, declined gradually, and disappeared about the end of February. It proved chiefly fatal to babies and adults, older children and adolescents being comparatively lightly affected.

Newcastle has escaped small-pox since 1910. In 1922 30 per cent. of the babies received exemption certificates, and in surrounding districts only about one in five of the babies born is vaccinated. A small outbreak of seven cases of enteric fever was associated with the milk from a dairy, probably originating with a farm outside the city, but the cause could not be definitely traced. Dr. Kerr thinks that owing to the efforts of the health visitors measles is now treated as a serious ailment and is consequently much less fatal than formerly. He also thinks that opportunities of infection with infantile diarrhœa are much lessened, as compared with ten years ago, "by the general use among non-breast-fed children of dried milk in place of the much more readily contaminated fresh form of the commodity," and that as the result of the teaching of the centres "the present-day Newcastle mother knows much more about baby-care than did her mother."

Two outbreaks of food poisoning occurred. One was associated with soup made from a ham-bone and left standing in a warm place in a kitchen in a poor neighbourhood; three persons were ill, one fatally. Two other consumers of the soup remained quite well but harboured the infecting organism, the *Bacillus enteritidis* of Gaertner, for about a week. The other outbreak was apparently caused by canned beef; 36 persons in 7 families were known to have been affected. The symptoms were acute but passed off in two days and there were no deaths. Later, information from the Ministry was received of three similar outbreaks in various parts of the country, apparently due to canned beef packed by the same firm. The infecting organism was not discovered in any of the outbreaks. The average stay in hospital of scarlet fever patients suffering from nose and ear discharges has been reduced by engaging a specialist, Dr. Neil Maclay, for the treatment of these complications. Promising results are also claimed from the prophylactic use of a detoxicated vaccine prepared from cultures of organisms from cases of scarlet fever developing ear and nose discharge.

A special effort has been made to follow up patients who discontinue treatment at the V.D. clinic, and the proportion of patients who cease attendance prematurely has been reduced from 30 per cent. in 1921 to 23 per cent. in 1922. Hostel accommodation is needed for infected girls and unmarried mothers. Four policewomen have done good service in patrol duty and in detective work in connexion with charges of abortion and treatment by unqualified persons. Dr. Kerr has no doubt of the great value of the maternity and child welfare scheme, and shows that the saving of life in the first year is coincident with a saving in the next four years. He evidently much regrets the cutting down of the staff by the dismissal of eight health visitors in 1921 and a reduction in the medical service, resulting in overcrowding at the centres, &c. New centres are now being opened and the medical sessions increased.

The report of the tuberculosis officer (Dr. W. H. Dickinson) shows that in spite of a steady reduction during recent years, Newcastle-upon-Tyne shares with its neighbours—Gateshead, South Shields, and Tynemouth—the unenviable distinction of having, in recent years, the heaviest death-rates from tuberculosis of all the county boroughs in England. Dr. Kerr suggests overcrowding as the chief cause, backed up in the case of Newcastle by loss of sunshine owing to the pall of smoke. The principal trades and occupations, he points out, are of a healthy nature. It is difficult to get hold of pulmonary tuberculosis at a hopeful stage, and Newcastle is in the anomalous position of having beds to spare at Barrasford Sanatorium and not nearly sufficient accommodation for advanced cases at the City Hospital. Successful results are being obtained at the various institutions from artificially-induced pneumothorax. Two notable lacks are an open-air school for pre-tuberculous children and accommodation for surgical tuberculosis.

Of 171 samples of milk examined 12, or 7 per cent., were found to contain tubercle bacilli. Owing to pressure of other work the 489 cows stalled in the city did not undergo regular veterinary examination. Slaughtering is carried out on 102 separate premises. A public abattoir, combined with a cattle market and meat market and with provision for the allied offensive trades, is needed, and Dr. Kerr says there is now general agreement that it should be on the outskirts of the city. The raising of the embargo on the importation of Canadian cattle has been accompanied by such restrictions that the Newcastle Corporation have not undertaken the necessary expenditure on wharfage for cattle ships. At the end of the year two farms were producing "Certified" and six "Grade A (tuberculin-tested)." An endeavour is being made to lessen the number of small general shops selling milk. In 1918 there were 668; now there are 266. The difficulty in getting renovation and repairs of houses is slightly decreasing; 523 new homes were provided in 1922 as compared with 305 in 1921, but very many more are still necessary to meet immediate needs. Of the new houses, 442 were built by the corporation on the Walker estate and 22 on the Pendower estate. The housing committee have set an excellent example by providing only one coal fire in each new house, the remainder being for gas. "Overcrowding is the rule and sub-letting is rife. There is no means of controlling this last as yet, and one constantly comes across the most heartless cases of profiteering at the expense of unfortunate tenants of so-called furnished lodgings."

Salford.

Dr. H. Osborne, in presenting his first report, mentions that the final exhortation of his predecessor, Dr. C. H. Tattersall, who resigned after 25 years' service, was as to the urgent need for a maternity home. The new sanatorium at Marple was opened in December. The question of the prevention of respiratory diseases is an urgent one and demands careful attention, and Dr. Osborne has no doubt that the gross atmospheric pollution has an important bearing on their incidence. During 1922, 2728 smoke observations were taken: 121 stokers were cautioned by the inspector; 39 firms were reported to and dealt with by the health committee; and 114 cautionary notices were issued to firms. Two firms were summoned for smoke nuisances and each case was adjourned sine die by the stipendiary magistrate.

Ten of the 197 samples of milk examined for tubercle bacilli gave positive results. The public analyst, Mr. G. D. Elsdon, reports on dirt in milk, and comes to the conclusion that 1 part of sediment per 100,000 parts of milk would be a fair standard to set up and that milk containing 2 or more parts per 100,000 should be classified as distinctly unsatisfactory. The subject is one of peculiar difficulty, he points out, because it is quite easy for the retailer to remove the dirt immediately before sale by decantation or filtration, and thus delude the purchaser into

thinking he is buying a clean pure article. He thinks that a standard is badly needed for ordinary milk, and hopes that the "graded" milks, which can be sold at enhanced prices to those willing and able to pay, will not monopolise attention, seeing that ordinary milk will always constitute the bulk of the milk sold in the country. Proceedings were taken for the improper labelling of margarine and fines inflicted. Three of the margarine samples were advertised as blends or mixtures of the finest margarine with best butter, and contained respectively 5, 8, and 10 per cent. of butter fat. As such mixtures are not allowed to contain more than 10 per cent. of butter fat, it is obvious that a purchaser, who does not know the law, may easily be prejudiced by such an advertisement. Mr. Elsdon reports that a large proportion of the rice now sold is not polished or "faced" with talc. Some attention has been given to the amount of tin in tinned goods, the standard adopted being an excess of 2 gr. per lb., in accordance with a L.G.B. report of 1918. A sample of melon and orange jam was found to contain 6 gr. of tin per lb. Mr. Elsdon states that, although it is quite possible to prepare tinned goods containing less than 1 gr. of metallic tin per lb., this figure is frequently largely exceeded, especially in the case of old samples. A great improvement has taken place since samples of prescriptions issued under the Insurance Act were taken for analysis.[1] Thus from 1914 to 1920 the number of adulterated samples was 20 per cent., while in 1921 and 1922 the percentages of adulteration were only 3·9 and 5·4 respectively.

Dr. Osborne's report concludes with a description of the very complete child welfare scheme. There are nine centres and two clinics. Children from the centres requiring treatment or more than weekly supervision are passed on to the clinics and return to the centres when improved. A whole-time masseuse is employed at the clinics and centres with good results. Sessions are held at the clinics for expectant and nursing mothers, who require medical advice for themselves. Thus, skilled attention is available for the child from the time of its conception to the time at which it is passed on to the care of the school medical officer, and when this transference takes place its medical record passes with it, the school clinics and child welfare clinics being housed in the same buildings.

Cardiff.

Dr. Ralph M. F. Picken tells us that the extension of the city in November, 1922, besides adding a population of over 20,000 has introduced problems of a rural nature. For instance, the city dairy-farms have increased from 4 to 33 in number. A comparison of the Census figures of 1911 and 1921 shows that the excess of families over structurally separate houses has increased by 4149 since 1911. There is much multiple tenancy and in the middle of 1921 the excess of families over houses was 10,569. Using various estimates, Dr. Picken thinks that the number of houses which ought to be provided between 1921 and 1931 should be not less than 6000 and nearer 10,000. The number of houses erected during 1922 was only 71, of which 48 are classed as working-class houses. Slums, in the commonly accepted sense of the term, do not exist and therefore Cardiff is not able to put up a case for sharing in the annual Government grant of £200,000 for clearing away unhealthy areas. During the heat wave at the end of May and beginning of June the nuisance caused in Canton district by the variety of mosquito known as the common gnat led to an inquiry as to the types of mosquito existing in the neighbourhood. Dr. Simpson, of the Welsh National Museum, reported that the great majority of larvæ submitted to him were of the culex or gnat variety, but that two were of the anopheles type. The number of cases of malaria notified in 1922 was 15, all of which were infected abroad. Quite apart from the malaria risk, culex bites are a source of great discomfort, and steps have been taken, with the advice of Mr. John F. Marshall, hon. director, Hayling Island Mosquito Control, to endeavour to prevent mosquitoes breeding in the district.

[1] See THE LANCET, 1923, i., 772.

Sunderland.

Dr. Henry Renney submits a table showing the result of the bacteriological examination of the water. The Sunderland water is derived from deep wells in the Magnesian Limestone. The Newcastle water is a pure upland surface water collected from large catchment areas near the Cheviots and in lower Northumberland. The Sunderland water is not filtered, while Dr. Kerr tells us that in the case of Newcastle there has been no increase in the area of the filter-beds or the storage capacity of the reservoirs during late years coincidently with the increased consumption of water. It is therefore interesting to compare the results of the bacteriological examinations during 1922 side by side:—

Class.	Water examinations, 1922.	Sunderland.	Newcastle.
I.	Colon bacilli not found in 100 c.cm.	67	2
II.	,, ,, found in 100 c.cm.	87	71
III.	,, ,, ,, ,, 10 c.cm.	32	100
IV.	,, ,, ,, ,, 1 c.cm.	2	16
	Total samples examined..	188	189

Both these waters are believed to be of great purity and, in view of Sir Alexander Houston's recent investigations, it is possible that seagull-droppings are the chief source of the colon bacilli in each instance.

Dr. Eustace Thorp, reporting on child welfare work, thinks bronchitis and rickets are exceptionally prevalent, and that "scarcely any baby in Sunderland attains the age of 1 year without suffering from one or more attacks (of bronchitis)." Treatment for otitis media is badly needed. Miss Barber, the chief health visitor, reports that four of the eight centres are decidedly overcrowded. "The grants of dried milk to necessitous cases have been a great help to many poor infants and nursing mothers." Midwives attended 76 per cent. of the births. The guaranteed salary (£150) of the midwife appointed for the East End has been repaid in fees to the Corporation. The Midwives Medical Aid Fund still operates. Each midwife pays 1*s.* 6*d.* of her 25*s.* fee to this fund, and out of the fund the midwife's fee is paid if a doctor has to be called in, the doctor's fee being paid by the patient. A charge upon the rates is thus avoided.

SCHOOL MEDICAL SERVICE.

Northamptonshire.

THE average number of scholars on the roll here was 28,248, and of these 10,479 were medically examined during the past year, 7885 of these being in the code group. Of the latter 955 were referred for actual treatment; 290 are recorded as being below standard nutrition. There were no cases of "bad" nutrition; 7·38 per cent. of the children were of "excellent" nutrition. Altogether there was a total of 96·32 per cent. normal and excellent nutrition, against 94·78 per cent. in 1921. Defective vision requiring treatment was found in 295 cases. Myopia occurred in the age-group up to 10 years, boys 11 per cent., girls 14 per cent., and in 11 years and over, boys 31 per cent., girls 39 per cent. It is pointed out that these figures show no disproportionate increased incidence in girls as is usually stated. Fifty-three boys and 102 girls were found to be myopic and 258 boys and 343 girls hypermetropic. Dr. C. E. Paget reports that a persistent fight is being made against uncleanly conditions, with the result that one school in a large urban area is declared to be "nit free"—a great achievement. The circulation of this fact with the name of the school ought to help considerably in getting a high standard throughout the county.

Corrigendum.—Dr. A. G. Jenner writes to point out that he is both medical officer of health for Stockport and also medical officer to the Education Committee. The two school medical officers are Dr. W. H. Rowell and Dr. Taylor-Haworth. We are glad to make this clear.

THE LANCET CENTENARY DINNER

THURSDAY, NOVEMBER 29th, 1923.

THE dinner given to THE LANCET in celebration of the Centenary of the paper was held at the Hotel Victoria, Northumberland-avenue, on Thursday, Nov. 29th, Sir DONALD MACALISTER, President of the General Medical Council, in the chair.

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The vice-chairmen of the different tables were Mr. Willmott Evans, Mr. James Berry, Dr. Marguerite Kettle, Mr. H. D. Gillies and Dr. J. H. W. Laing (hon. secretaries), Mr. Percy Hodder-Williams, Dr. E. C. Morland, Dr. R. A. Young, Dr. John Freeman, Dr. W. Essex Wynter, and Mr. R. E. Sare (general manager of THE LANCET).

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THE LOYAL TOASTS.

Proposed by the Chairman (President of the General Council of Medical Education and Registration).

After the Grace, said by the Rev. A. Whitaker Oxford, M.D., Sir DONALD MACALISTER gave the toast of "The King." He said: His Majesty has been graciously pleased to accept a diploma form of the honorary Fellowship of the Royal College of Surgeons of England, but with equal graciousness he has been pleased to refrain from presenting, or causing to be presented, that diploma before the General Medical Council for registration. He has thus most considerately relieved that body and its President from an embarrassing situation, for which act of grace they are humbly and respectfully thankful; but His Majesty has given abundant and most welcome proofs of his deep personal interest in the physical health and well-being of his subjects, and of his personal sympathy with the ministrations of the medical profession directed to that end. For that reason I ask you, not as loyal subjects only, but as loyal members of that profession of which His Majesty is himself an honorary member, to join me pledging enthusiastically His Majesty's health and happiness, and long prosperous reign over us. In the old words, I give you, "The King, God Bless Him."

This toast having been drunk with expressions of enthusiasm, the CHAIRMAN gave the toast of "The Queen, the Queen Mother, the Prince of Wales, and Other Members of the Royal Family," remarking: What can I say more or better than that they in a thousand ways are ever showing forth the gracious spirit that animates them in the furtherance of those works of benevolence associated with healing and the relief of human suffering which lie within the special province of our profession. In no previous reign and in no other country have the Queen and the other members of the Royal House held a higher place in the affections, professional as well as domestic, of all who are called, whether as doctors or nurses, whether in the war-like services or in civil life, to safeguard and promote the public health. For their devotion

THE LANCET CENTENARY DINNER.

to that end we give them our loyal and continuing gratitude. In testimony of our affection—our loyal and admiring affection—I ask you to drink with me to the Queen, Queen Alexandra, the Prince of Wales and the other members of the Royal Family.

In calling upon the Rt. Hon. Lord Hewart, Lord Chief Justice of England, to propose the toast of the profession of medicine, the CHAIRMAN said: There is an ancient Latin tag, *Salus populi suprema lex*, but as the compulsory study of Latin is no longer enforced for medical qualifications, at least in London, I will translate for the benefit of the ladies: *salus populi*, the medical profession; *suprema lex*, the Lord Chief Justice of England.

"THE PROFESSION OF MEDICINE."

Toast Proposed by the Lord Chief Justice of England.

Lord HEWART said: It is an honour and a pleasure to propose the toast of medicine. I am forcibly reminded of a rather ancient story about Lord Palmerston at a Ministerial whitebait dinner at Greenwich. It was said of him that he looked at the dish of appetising whitebait that lay on the table before him, then took a glance at the interesting countenances of his colleagues in the Cabinet, and said: "Do let us follow the excellent example of these wise little fishes; let us drink a great deal and say nothing." This always seems to me to be an excellent maxim for a festival occasion. I never felt the truth of it more than I do to-night. Perhaps this is not solely, although mainly, a festive occasion. You, Mr. Chairman, in that brilliant, but, I regret to say, inaccurate translation of the phrase which you have just used coupled medicine and law. While there is no doubt a close association between medicine and law, both the legal profession and the medical profession receive unstinted and universal gratitude and appreciation. These two professions have very few critics. It was never said, so far as I know, of the medical profession that it had ever devoured widows' houses. With the single exception of the law, there is no profession more devoted to the art of healing than the medical profession. With the single exception of the law, there is no greater, no wiser, no more humane profession than that of medicine. I will go one step further and add that next to the law there is no more ancient profession than the medical profession. At a gathering about a year ago there were those who traced the history of the medical profession back to Herodotus, and reference was made to the ancient art as practised among the Egyptians. There were those who carried the history back to Homer. But there was one—the Prince of Wales—who carried the history back to the Garden of Eden, and he said that already in those comparatively early times Eve had learned the truth that "an apple a day keeps the doctors away."

May I, however, say one serious word upon a matter which has recently come before the public and is likely in a different form at no very distant time to come before the public again. It is often said that upon the difficult question of insanity, as it is understood by the law, there is a serious conflict between the view of the lawyer and the view of the physician. I express no opinion on that matter, but there has recently been set up a committee of lawyers who have inquired into the matter, and, as I understand, the report of that committee contains a recommendation for something which, if adopted, will undoubtedly mean a wide expansion of the criminal law. At present if a person is to be held not responsible for a crime upon the ground of insanity, he must fulfil one of two tests. He must satisfy one of two conditions, either that by reason of infirmity of mind due to disease of the mind he must not know that what he is doing is wrong, or he must not know what he is doing at all. That is an ancient maxim of English law. Medical science is, I understand, not satisfied with those two alternatives. It suggests at least a third alternative—that a man may know what he is doing and may know that what he is doing is wrong, and yet by reason of disease of mind may be uncontrollably compelled to commit that act. It is this condition which, I understand, is now recommended by the committee upon the advice of eminent specialists. I express no opinion, but one thing is clear. If that is indeed to be the law—and *salus populi suprema lex*—I do not suggest that we shall launch out upon a sea which has no shore, but, at any rate, we shall launch upon a sea of which the shores are far more widely separated than are the shores which, as lawyers, we have hitherto known.

Before I sit down, I will just say one word upon the more immediate occasion of this gathering. This is, as you all know, the hundredth anniversary of the existence of that great medical publication, THE LANCET, and in the presence of those who are immediately responsible for it I will refrain from expressing the compliments which, if they were absent, we should all be disposed to express. But one may say that it is fortunate indeed for the medical profession and for the public of this country that it so long had, and now has, a periodical of that distinction, that knowledge, that wisdom, and, may I add, that public spirit. I have the honour to couple with the toast two names which are household words to the medical profession throughout the country, the name of Sir Humphry Rolleston, President of the Royal College of Physicians of London, and Sir John Bland-Sutton, President of the Royal College of Surgeons of England.

Response by the President of the Royal College of Physicians of London.

Sir HUMPHRY ROLLESTON said: To respond to such a far-reaching toast as the profession of medicine on such an occasion and before such a representative and righ ly critical assemblage is a proud honour, but not without serious responsibilities. On this unique anniversary our thoughts are naturally directed to the century of medicine that THE LANCET has chronicled so faithfully, and indeed at times painted in somewhat dramatic colours, thus exerting an influence at times stimulating, at others counselling moderation, and always wholesome. During this eventful period—by far the most momentous in medical history—the picture has completely changed, the science of medicine has been revolutionised; the art has made giant strides. So much so, that whatever the condition of the body politic, and at the moment "tranquillity" is hardly the word, we may feel tempted to adopt the attitude of Dr. Pangloss to the effect that the present is the best of all possible eras of medicine, and certainly there is some excuse for laying such flattering unction to our souls.

The last hundred years has seen the rise and results of laboratory research in medicine. So far back as a hundred years ago the modern laboratory idea originated, for in 1824 Purkinje's physiological laboratory in Breslau and in 1825 Liebig's chemical laboratory in Giessen were established; for a time progress in these directions was slow, but the leading position of British physiology and neurology must be regarded as the outcome of this method of investigation. The middle third of the nineteenth century was pre-eminently that of structural pathology, while the remaining part of the century saw the rise of ætiology after the founding of bacteriology by Pasteur and Koch; Lister's practical application of this new science to surgery was followed by Almroth Wright and the dictum that "the physician of the future will be an immunisator"—an ideal not yet finally accomplished. With the inspiration of ætiology, preventive medicine, especially in tropical diseases, has, under the guidance of Manson, Gorgas, Ross, and others, led to enormous saving of human life, and untold economic benefit to mankind. The present century is the era of research into functional disorder,

of biochemistry or the further stage of physiological chemistry, of chemotherapy, and of comparative medicine and pathology.

A remarkable feature of quite recent years, dating mainly from the war and after, is the increasing share taken by the Government in the prevention and control of disease. The Medical Research Council, appointed in June, 1913, like the panel system, the offspring of the National Insurance Act (1911), has all the enterprise, enthusiasm, and originality of youth. Its success under the direction of Sir Walter Fletcher is an answer to the fears that Government control must strangle initiative in the coils of red tape. The Ministry of Health has enormously expanded the province under the control of the old Local Government Board, and what it will do in the future it is possible only to guess by reading between the lines of its chief medical officer's reports. What the future may bring forth in the way of State service and State-run hospitals remains to be seen, and though this consummation does not appear to be devoutly wished for, it should be considered with an open mind.

In the past British science and medicine has been much indebted to independent individual effort, but with the increasing specialisation of knowledge combined effort or team-work is becoming more general both in research and in clinical practice. In the case of research this does not mean that the influence of the individual genius will be dwarfed, but rather that side-issues and details will be worked out in due proportion. Research has largely taken the form of the application of methods in the allied sciences, such as chemistry and physics, to clinical medicine, and by these means and by the great advance in preventive medicine, knowledge and control have been gained to a greater extent over the external forces of Nature acting on the body than over the methods of reaction of the human body to external influences; the early stages of disease still remain a problem for extensive investigation, as Sir James Mackenzie has so often insisted.

But what of the future? While congratulating ourselves that we are not as the early Victorians, ought we not to reflect that we are only just looking out on the promised land of health and are far from a position to rest complacently on our oars? We should realise that what Wakley's days are to the present, so will our position be to the editor and readers of THE LANCET in 2023.

Response by the President of the Royal College of Surgeons of England.

Sir JOHN BLAND-SUTTON said: In every form of religion among people, savage or civilised, men have believed that gods, from time to time, assume the forms of animals and, in fleshly garb, render service of a supernatural kind to mankind. Physiologists have proved that the condition of human beings, rich and poor, is not under the influence of gods or demons, but our gross bodies contain small bodies, called ductless glands, which make, and secretly discharge, occult fluids into the blood-stream to be distributed throughout the body for good or for evil!

It is on the action and interaction of the gods in our glandular pantheon that life and health depend; also our fatness or thinness; morality or moroseness; wit or wantonness. They can make us famous or notorious; giants or dwarfs. Should one of the gods be too active, or idle, the balance is upset, and clever physicians study the signs and symptoms, and frame a diagnosis, which to the patient, often seems like an act of divination. He then endeavours to restore the balance by administering an extract of the corresponding gland of a chimpanzee, armadillo, calf, goat or an A double S.

To-day, the treatment of diabetes engrosses men's minds. This involves the consideration of sugar. Interesting stuff is sugar whether we regard it in relation to the world of commerce, or the realm of science. Enormous fortunes have been made, and lost, in the production of sugar. It has entailed as much misery on human beings in the West Indies as ivory to the natives on the West Coast of Africa! The over-production of human sugar is a source of much misery to thousands upon thousands of patients. It is a matter of interest to the physiologist, a source of profit to the physician, and dismay to the surgeon. Unsuspected sugar in the urine is a serious obstacle to an operation. It is like an uncharted rock to a mariner. The discovery of the relation of the pancreas to diabetes came as a surprise. The islets of Langerhans, at first mere histological curiosities, are of more importance to mankind than the comet reported to be visible in the constellation of the Ram.

Recently I was dining in the company of physicians, some of them eminent; they plumed themselves on the fact that doctors, existing on human sickness and frailty, do their best to destroy the provocative agents of disease which enable medical men and women to make some sort of a living. This encomium does not apply to insulin, because patients who can afford to buy it must have the stuff administered by a doctor of skill. I can say in all sincerity, the discovery of insulin has seriously increased the cost of sugar to the producer. On careful inquiry I find that the treatment of a rich diabetic by a fashionable physician with this newly discovered preparation amounts to £700 or even £1000 yearly. This would, of course, include the cost of the insulin and the regular quantitative estimation of the blood-sugar by a laboratory authority. Let us fervently hope that some brilliant biochemist will discover a synthetic drug or a coal-tar product which will make diabetics independent of insulin. If such a substance were produced and be easily purchasable, like aspirin, some enterprising druggist would make an enormous fortune. Such a successful man might turn philanthropist, devote a portion of his wealth to rebuild the Royal College of Physicians, and also provide pensions for physicians who had been impoverished by the absence of diabetics from their consulting-rooms.

If Thomas Wakley could revisit the scenes of his strugglings and strivings, the contemplation of such changes would surely make him gape with astonishment!

"THE LANCET."

Toast Proposed by the Professor of Clinical Surgery at the University of Leeds.

Sir BERKELEY MOYNIHAN said: The pleasurable duty has been laid upon me of proposing the toast, "Prosperity to THE LANCET," a toast which will be most cordially and sympathetically welcomed by everyone here to-night. There is no man but wishes well to his friends, and THE LANCET, throughout the lifetime of us all, has been the good friend of our profession, and of every member of it, and of every interest the profession upholds. It has inspired, guided, and embodied the opinion of our leaders. It has helped to interpret for us our duty to the high cause we serve, to the public, to our professional brethren, and to ourselves. And all this has been done without fuss or clamour, with fair and gentle statement on every issue, strong where strength was needed, but at all times persuasive rather than compelling, and certainly in every way free from taint of self-interest or the least suspicion of other unworthy motive. What, then, can we do but pray for continued "Prosperity to THE LANCET"?

The methods of THE LANCET were not always so gentle. A hundred years ago the profession was the victim of many gross abuses, the chief of which were imposed upon it by men within its own ranks. The Apothecaries Act had been passed only eight years before THE LANCET first appeared. There had been neither time nor opportunity nor any inclination to organise the profession. Indeed, organisation of our profession for united action in any cause however good, on any occasion however opportune, under any auspices however favourable, seems even now

almost unattainable. In those days the profession suffered many things, both vexatious and intolerable. The shameless practice of nepotism, the harsh and unjust ordinances of governing bodies, the despotic methods of teachers and examiners, rankled in the minds of men. Yet there was no redress; the submission, the subjection even, of students and practitioners alike was complete. And then THE LANCET came, and all was changed.

It was an age of unrest when men had ceased to reverence authority. The revolt of America, the French Revolution, the juggling with thrones and with peoples that was the sport of Napoleon, had all unsettled the minds of men and made them impatient of sceptred control. Rebellion was in fashion. THE LANCET, conceived in a spirit of reform, was nurtured in this atmosphere of revolt, and Wakley lost no opportunity for the display of vivid and unfaltering courage, when he set out to attack privilege founded on injustice and used only for selfish ends. His first and avowed aim was the dissemination of accurate medical knowledge, but in such a time so narrow a restriction was hardly possible. It was not to be imagined as the sole purpose of such a man as Wakley. Of him, his character, his ideals, his methods, we have learnt all that we know from the life written years ago by THE LANCET's present Editor. As we look back we can see that Wakley's principles were in almost every instance right. His modes of procedure were at times crudely conceived and they were often conducted with the most savage rancour. He was fighting selfish interests deeply intrenched, interests completely disdainful and neglectful of the rights of others, and it is possible that no other methods than his would so surely have effected his purpose. His onslaught was terrific, in virulence, in volume, and in nagging persistence. He bestowed just enough praise upon individuals, and upon the conduct and results of operations to make his criticism of failures even more devastating. His evident affection and high regard for Sir Astley Cooper, "the Prince of Surgeons" in his day, did not save Sir Astley's relatives from the bitterest taunts. When Sir Astley assailed the practice of extreme salivation by mercury in the treatment of venereal disease, the surgeons to the Borough Hospitals were held to be arraigned. In his next lecture, Sir Astley Cooper asked: "Who are the men, gentlemen, against whom it has been supposed that these observations were directed? Are they men whom I could possibly feel disposed to injure? Mr. Travers was my apprentice, Mr. Green is my godson, Mr. Tyrrel is my nephew, Mr. Key is my nephew, Mr. Morgan was my apprentice." His very defence, you observe, was an admission of his guilt in respect of the nepotism of which Wakley so constantly accused him.

A favourite butt for Wakley's ridicule and invective was Sir William Blizard, an old gentleman for whom I have acquired a certain affection. For as I sit in the Council Chamber of the Royal College of Surgeons his portrait confronts me, and I seem in the lapse of years to have learnt to know and respect him. Wakley, describing in a few brisk phrases the surgeons of his day, tells us that Abernethy "consigns an examinant's eyes to perdition," and that Blizard avows a "horror of hats." In his category of surgeons, Wakley says, "there are some who shed lustre on their profession, some who cant, others who re-cant, and one who desires members of the College to take off their hats." Wakley inquires whether the proceedings at the Royal College of Surgeons can be opened in any other manner than by Sir W. Blizard desiring the members "to take off their hats," and he suggests that Blizard might take a lesson from an anecdote of the ancestor of the Prince de Levi, which shows that there is no rational or religious foundation for such a horror of hats. The Prince de Levi, who piqued himself on the antiquity of his family, showed to a lady, who visited him at Paris, his pedigree from the Flood; and when it came to the birth of Christ, De Levi's ancestor was represented as standing by the Virgin and Child, with his hat off, and there was a scroll from the Virgin's mouth saying, "Mon cousin, mettez le chapeau." "Pray, cousin, be covered." A few weeks later in an account of visits to the various hospitals, interesting cases are related from the Middlesex and Westminster Hospitals, but of the London Hospital this is recorded: "The only case of interest at this hospital, for a long time, has been that of Sir William Blizard; the congenital irritability of this patient of late has materially diminished. This happy and beneficial effect is attributed to the judicious application of 'The Lancet.'" Sir William was finally the subject of the first "medical portrait" which appeared in THE LANCET in 1833, when the victim was just 90 years of age and within a year or two of his death. The portrait was ruthless and vindictive, but its subject, far advanced in years, practising and teaching effete methods, and still tenacious of high office, did certainly group within his own person many of the offences to which Wakley was so bitterly opposed.

To Wakley's achievements we owe both admiration and gratitude. His robust and fearless independence, his faith in great causes, his loathing of injustice, his frank disdain for professional eminence based upon the favour of others and not upon industry that has been sternly tested and intellectual supremacy that has been fairly and openly won, all appeal to us. His pungent wit, his blistering satire, his merciless invective, all attract us, for though they are harshly, they were never once, I think, unfairly used. Men such as he are called into being in all countries, but especially perhaps in our own, when the human spirit is roused to violent upheaval and embittered antagonism by the exercise of power bereft of true authority, of strength devoid of right, of control dictated only by caprice.

But destruction, malicious or not, was by no means the only effect of Wakley's labour. It is, perhaps, a fair claim that no man has contributed more than Wakley to the constructive work which has distinguished the growth of our profession in the last century. It was at his instigation that Warburton's Committee (upon which served a kinsman of my own) was formed. The Medical Act of 1858, the charter of our profession, was certainly due more to him than to any other man. He formed an intellectual alliance with other countries, chiefly with France. He published the lectures of Dupuytren, Magendie, and Andral, and Cooper's lectures published by him were translated for the French journals. And as the years passed by he drew to himself, in steadily increasing numbers and sometimes into close association, those members of our profession who sat, or were soon to sit, in high places, and who in no small degree directed the professional destinies of their fellows. He sacrificed no single principle, but remained to the end obdurate and unwavering in his defence of what he believed to be right and in his relentless assault upon what he knew to be wrong. It was the conversion of others to *his* views, the recognition that his causes were just, that finally established him in the opinion of all men as the greatest of our reformers, and as a true benefactor to our profession. The monuments that are raised to the memory of our benefactors are of every order. Some are carved in stone and some are cast in bronze. The greatest memorial to Hunter is the incomparable museum that bears his name, in our College. Mankind will forever bear living witness to the genius of Lister. Many of you whom I see here to-night have your own memorial in the grateful hearts whose heavy load of suffering and of sorrow your strong hands have lifted. Few monuments are so noble, few will be so enduring as the journal which perpetuates the memory and the labours of Wakley.

From his day to ours THE LANCET has progressively grown in influence and in authority. In its pages the story of the advance of medicine is steadily unfolded. With its help greater medicine, medicine in its full relation to the public welfare and the public safety has been inaugurated and its growth encouraged. The world is a little weary of journals, especially of those which seek an ever larger circulation, and ever

greater power while a little unmindful of the high responsibility which rests upon them. Is not the first duty of journalism to educate, to draw the individual out of himself, to direct and enlarge his outlook, to create and foster a sense of his corporate responsibilities and to bring him, no matter how remote his home, into intellectual and emotional contact with his fellows; in a word, to be for him the messenger of light and truth? For such a task vigour there must always be, and humour will not come amiss, but honesty in search, sanity in exposition, with truth as the distant goal, are attributes of an ideal journalism. All these THE LANCET has long shown, and shows now more plainly than ever under its present Editor.

Of Sir Squire Sprigge I will not venture to express any personal opinion, but I may be allowed to say that in his hands the future prosperity of THE LANCET is assured. We all realise his unsurpassed knowledge of the wide and various problems covered in these days by the single word "Medicine." He has a keen and proper sense of the part which our profession ought now to play in its relations with the public. Resolute of purpose, he has integrity of thought, sobriety of judgment, and an admirable lucidity of expression. He enjoys in fullest measure the high regard, the trust, and the affectionate admiration of his professional brethren.

I ask you therefore—

In honour of the memory of its Founder,
In gratitude for all its labours towards the welfare of our profession,
In confident hope for its future,

to drink the toast, "Prosperity to THE LANCET."

Proposed from another aspect by the Proprietor of the "Daily Telegraph."

Viscount BURNHAM said: I am very proud on behalf of the newspaper press of this country to be allowed to join in proposing and toasting the famous journal the centenary of which we are here to celebrate. We are all here equally proud of that high tradition founded on patriotic motives and technical efficiency which has made THE LANCET what it is—the gospel and literally the good tidings of national health. We exult, too, in the spirit of independence it has shown, which has never brooked control, in the fullness of its knowledge, which is only bounded by the scientific attainments of its contributors, and by its love of truth, which is founded on the maxim that "Truth is the basis of all excellence." We of the daily and weekly press are too fond of imagining that we are the whole of the newspaper press, and we are apt to forget that part of it which is devoted to professional and technical interests, and of which some would say that the half undoubtedly is better than the whole.

I would say this, too, that whilst our circulation is in the main national, the circulation of such of the scientific press as is represented by THE LANCET is world-wide, and wherever you go in the British-speaking countries, or even outside them, you find that half of the British press upheld and recognised as setting a standard of veracity and initiative for all alike. Of that kind of paper THE LANCET is undoubtedly a fine example. Especially does that count when the world generally is getting rather tired of words, no longer believing that salvation cometh out of rhetoric, and is more inclined to turn to the things that really matter, whether they are clothed in beauty of phrase or not. I can say, too, that no paper has ever reflected in all its essentials the characteristics of its founder better or longer than THE LANCET. Its methods may now be more tender, but its principles are the same, and in its virility and sincerity it is the express image of Thomas Wakley.

The world knows, or anyhow cares to know, little of its greatest men, but if you have any sense of the reality of things you must recognise that Thomas Wakley was one of the makers of modern England. He declared against shams and make-believes, against quacks and all those who tried to deceive the public. He had no reverence for ancient abuses, nor did he believe in the interests that were vested in ignorance and brutality. Why he should have been inspired to do all he did because he was unfortunately mistaken for the hangman and despoiled of his goods by members of a political conspiracy, I do not know, but he made up his mind that his life was to be a crusade and a crusade he made it. He must have passed almost as much of his time in the law courts as he did in Bolt Court in the old offices of THE LANCET, and ten actions were brought against him in the early years of his strenuous journalism. But you whom he chastised have been singularly forgiving, because you honour his memory whenever it is mentioned. Undoubtedly when he first rose to fame the medical profession was not much further from those days when Bacon said: "It hath been more profound than laboured; and yet more laboured than advanced; rather in circle than in progression." How did he leave it? At the end of his stormy and strenuous life you know that, after being thrown out of the building by Bow-street runners, he opened the door of the College of Surgeons and freed it from the bonds of a close corporation. He made you as a profession recognise, for the first time, the rule of public responsibility, and he dispelled the professional obscurantism which had been the practice of medicine in the past.

He cleansed, so far as was possible in those times, the coroner's court, and insisted that the coroner ought to have the technical qualification which fitted him for the discharge of his duties. He forced the attention of the public to the question of the adulteration of food, and, through THE LANCET's analytical commissions and by a Committee of the House of Commons prepared the way for the Scholefield Act, which for the first time protected the health of the community as consumers. All this he did, and I am glad to know that THE LANCET has always clung to the spirit of his work, and is to-day what its Founder would have hoped that it might always be. I can only hope that it may long be able to take its share in the inestimable work of reducing the sum of human misery, and adding to the great and essential quantity and quality of the public health. It has now passed into the possession of a firm of publishers whom we all know and honour, and I am certain that in the hands of Sir Ernest Hodder-Williams it will suffer nothing, either in its technical excellence or in honourable conduct.

Response by the Editor of "The Lancet."

Sir SQUIRE SPRIGGE said: It is usual at old school dinners, old college dinners, and similar functions to obtain a speech from a senior, who speedily drops into reminiscent vein and usually allows that when he was a lad he was a devil of a fellow. In such a connexion a bishop or a judge, by confessing to us that he once fought a river-side character on the boat-race day, achieves a success in words which may not have attended his fists. Now, of course, THE LANCET is a senior. In its youth it has been described to you as a devil of a fellow, an allusion made both by Lord Burnham and Sir Berkeley Moynihan, who gave me the exact opening, almost an invitation, to relate how in our youth we fought the bargees of nepotism and corruption. But I decline the invitation to be reminiscent, though with nothing but satisfaction at the memories evoked. The past outrageous energies can never be repeated by us. You see the distinguished men who have done us the high honour of being with us this evening. No doubt they in their youth resisted discipline and embarked on adventure. Perhaps without such individuality they would never have gone so far, and it was a gallant sight, I am sure, to see them in their youth; but a brawling minister is unthinkable, and a bishop with a torn apron or a judge with his wig on the green would not only be a pathetic sight but their great future utility would be prejudiced by the episode; and it is to our career of extended utility that I wish

to come. The violence of past days is gone, but the desire for the right and zeal to achieve it remain as forcible as they were 100 years ago, and we shall press towards the mark of our ideals with unabated energy, even though without the concomitants of egal struggles or personal bickerings.

We have had before us over the century two ideals—the maintenance of the status of medicine and the diffusion of medical knowledge—and to their accomplishment our best endeavours will be used. The Centenary Dinner of THE LANCET is a milestone on the road to progress, and not our obituary tombstone. And as for myself, while I thank you from the bottom of my heart for your kind reception of my association with this toast, I must say that I am only the robin sitting on the milestone twittering to call attention to the particular stage. We did not erect the stone; you gentlemen and your predecessors did that, and it is through your continued support and unvarying coöperation that we hope to mark the route of progress at future stages. We depend upon our friends, THE LANCET is, as it must be, a friend-made paper. relying on the good offices of its supporters who read each others' wisdom and clarify or correct each others' views. I also am a friend-made man. And I have called on the services of friends to a shameless extent through school, college, and professional days. I was at the best of schools, and the son of my headmaster and the medical officer of Uppingham School are here to-night. I was at the best of colleges, and my most distinguished contemporary, the President of the Royal Society, who also is here, has remained my friend since those days. I was at the best of hospitals, and its ornament, the President of the Royal College of Physicians, you have listened to. Through school, college, and hospital associations I have exacted levies from friends, and, as time went on, enlarging environment gave me enlarging opportunities for such exactions. So that I know that it is to others that I owe what you have accorded to me. Further, any measure of success which has been obtained has been in return for labours of love. It is they who have to discharge a dull routine and face distasteful duties whose devotion is really admirable. I have enjoyed myself. Medicine may be only one section of the world's activities, but it is an ever-developing and all-permeating one. It has been my delightful duty to record the phases and ramifications of medicine as they are produced and as they are justified by the workers themselves.

Response by the Chairman of "The Lancet."

Sir ERNEST HODDER-WILLIAMS said: I am indeed a very grateful and a very proud man to-night—very grateful to you, Lord Burnham, who have always been so good to mine and to me, for the very kind things you have said about our connexion with this great paper THE LANCET, grateful to all of you my lords, ladies, and gentlemen for the way you have received the toast. I am very proud to stand to-night in this place of a great tradition. Perhaps, under the circumstances, you will allow one personal reminiscence. In the days of my early manhood—and my father, whom I am delighted to see here this evening, will bear me out when I say that at that time one reached early manhood very early—I had the ambition to enter the medical profession, but the Fates, no doubt in kindness to my future patients—the Lord Chief Justice would, I am sure, advise me to add the magic legal phrase "if any"—decided entirely otherwise. They did not, however, altogether forget, and after many years they presented to me a grand old surgical instrument—THE LANCET—fashioned out of a material with which I had become somewhat acquainted. And when I use the personal pronoun may I say at once that I refer not only to myself but to all my splendid associates and very specially to the best of brothers. As proprietors of this paper we made a vow and we took a pledge—we have tried to keep them. The vow was and the pledge was that we would, as far as in us lay, do nothing which might leave the slightest stain of dishonour on a most highly honoured name. That pledge we have tried to keep, we shall try to keep in the future, even though it should mean—as in the case of Wakley—having our houses burned down and gutted, even if it means that we have to fight half a dozen libel actions in as many years, even if it means (which heaven forbid!) that one of us has to enter Parliament. Well, we must vote and see. We indeed were fortunate that when a change of proprietorship took place there was no change in the editorial leadership. From the moment when we first met Sir Squire Sprigge until now there has not been one single matter of policy—and matters of policy are vital to those who are responsible financially, and some people would say morally, for the contents of the paper—there has not, I repeat, been one single matter of policy upon which we have not been in spontaneous and complete accord, and I take this opportunity of thanking Sir Squire Sprigge and the whole of his staff for the way in which they have worked with us. It is a pleasure, and it is going to be a pleasure for many years to come, to work with them and for them. In these latter years laymen, business men and business women, have worked increasingly side by side with professional men and professional women in many fields of service of peace and of war, in none, I think, with greater honour to themselves and to their cause than in the field of healing. It is because of this that we business men who control the destiny of this grand old paper, THE LANCET, feel so deeply our responsibility, our privilege and our opportunity. If we can be of any service to you in scattering far and wide the fine grain garnered from your knowledge and your experience—if we can be of service to you in breaking up the stony ground, in rooting up and utterly destroying those tares of ignorance which still so often choke the finest growth—then perhaps we may have some small share in the joy of your reaping.

"THE GUESTS."

Toast Proposed by the Chairman of the Medical Consultative Council, Ministry of Health.

Lord DAWSON said: After so much brilliant oratory I should ill requite the kindness of our guests in gracing our feast if I submitted them to a recital even of their virtues. If we are right in saying that a man may be judged by his friends, surely this assemblage of varied callings and distinguished talents gives vivid and delightful expression to the appreciation in which THE LANCET is held. And in showing this generous measure of goodwill to THE LANCET you are showing goodwill to medicine, for in a very intimate sense we regard THE LANCET as belonging to ourselves. And I would suggest that professions have need of each others' understanding, and this is more and more true of medicine, for when in former days its scope was limited to the cure of disease in individuals it was possible for it to hold itself in almost monastic detachment from social progress. But in these days when the health of the community is within its orbit and is likely in the future to claim a dominant part of its attention, contact with other callings will be more close and its thoughts and conclusions will be a necessary part of sound statesmanship. And this deeper and steadier statesmanship of the professions will extend a beneficent influence to international relationships in that it will be untouched by those surface disturbances which rise and fall with the changing winds of political exigencies.

The presence of His Excellency the French Ambassador has delighted and honoured us, and brings to mind the admiration and affection which we hold towards our French colleagues. Our sympathy for them is too bright and pervading to be dimmed by any passing clouds of political difficulty. For us the genius of his people creates much for which civilisation stands, and in the field of medicine that genius is ever and abundantly manifest. We have enjoyed the presence

of the Lord Chief Justice. It is with us as with all. The disciples of the law not only entertain thought, but can adequately place it, and the Lord Chief Justice has by the magic of the mind and to our enjoyment woven generous thoughts into the beauties of speech. The territories of medicine and law have increasing contact. We deal more with Nature's fashionings of man and they with man's fashionings of himself. Our friends of the Press, who, as always, are so generous in their support to-night, are feeling at the present time some of the difficulties which are apt to beset us. In the nation's present plight we notice in some quarters a conflict of advice, which recalls to my mind "How you doctors always differ," and elsewhere a certain doubt as to the prognosis which leads to what we doctors recognise as "expectant treatment"—a handling of the case which can be modified as circumstances dictate. Even in those Sunday papers which give guidance and entertainment to millions of readers, I find expectant treatment is the order of the day.

Our guests are so varied in their gifts that I could not with any approach to brevity appreciate them adequately. But may I make reference to Major John Hay Beith, known to us all as Ian Hay, who alike with sword and pen has rendered great national service. There is another guest to whom one and all will extend a special welcome, the great-grandson of the Founder of THE LANCET—T. L. Wakley, now at Oxford. The love of public service and fearless striving which has descended on him will serve him well, as he stands on the threshold of one of the most interesting periods of English history. We all wish him God-speed. The Lord Mayor links us with the history and administration of this ancient City, which, if so minded, could celebrate not one hundred but 800 years of existence. Moreover, he brings to us to-night not only the good feeling of the City of London, but the lustre of personal distinction earned in the field of civic administration. Sir Dawson Williams, who with the Lord Mayor will respond to this toast, has found in journalism the greatness of medicine and in medicine the greatness of journalism, and to our great advantage upholds the best in both.

This toast gives expression to our joy at the presence of our guests and of our friendship towards them. I give you the toast of "The Guests."

Response by the Lord Mayor of London.

Sir LOUIS NEWTON, said: On behalf of the guests I thank you for the delightful evening we have spent, and for the interesting and fascinating account we have had of the career of THE LANCET during the hundred years of its existence. I am here to-night to show the great respect felt by the City of London for the eminent medical journal published within its walls. I am also here as President of the Hospital Sunday Fund to bear grateful testimony to the great share the Wakley family and THE LANCET had in starting this Fund 51 years ago. Its success has been so great that nearly £3,000,000 have been raised on behalf of the hospitals of London. The Lord Chief Justice, in his interesting speech, showed you to his own satisfaction the close connexion between medicine and the law. Had I the time I might prove to you beyond question the close connexion—a very feeling connexion—between the City of London and medicine. I congratulate you on the fact that you are celebrating the Centenary of a publication of which you can be justly proud, and on my own behalf and that of the City of London, as well as on behalf of many bodies of sincere admirers, I give expression to the hope that THE LANCET may live for many centuries to come.

Response by the Editor of the "British Medical Journal."

Sir DAWSON WILLIAMS said: You, Sir Donald, enjoy a very high reputation with your profession, but I feel that on this occasion you are endangering your reputation for discretion and judgment. I appeal to you whether it has not been altogether superfluous to call on me at this late hour of the evening and after the Lord Mayor has so well expressed the thanks of the guests. I can only excuse you on the ground that I should be allowed the opportunity of speaking in the name of what I suppose is the smallest specialty in the medical profession—the specialty of medical journalism which I have followed for so long—and of offering to THE LANCET our congratulations on attaining its hundredth year. Very few journals live for a century. To do so requires great powers of adaptation. Times change and journals change with them. THE LANCET has had a succession of able editors, some of whom I have known, while in the hands of the present editor, my friend Sir Squire Sprigge, the vigour of the journal has not in any way diminished. A medical journal in these days, when medicine has become so complicated and the interests of members of the profession are so varied, could not exist unless it had the support of the profession. That sounds like a truism, but I am not thinking of subscription lists, but of the kindly support that comes to us in the many complicated questions with which we have to deal. Specialists in every department place their experience at our disposal. Various motives impel them to do so, the chief, I think, being a real love for their particular subject. They are moved also by the desire to help a brother, and perhaps by loyalty to a particular journal. The conduct of a general medical journal does not get more smooth. It has to some extent to correspond with the complexity of the science with which it deals, while another difficulty is the inordinate length at which so many authors want to write. It is one of the difficulties which beset all kinds of scientific societies. Even the pure mathematician produces in place of a column of text formulæ so long that they must be printed the wrong way of the page. A phenomenon of the time is the multiplication of special journals. It is an admirable movement and one which the general medical press must thoroughly applaud. The men who conduct these journals do so at great sacrifice. But the special medical journal is a sort of large scale ordnance map which a man gets when he is going to buy an estate and has to consider where the different buildings lie, while the general medical journal is the inch-to-the-mile survey giving a general idea of the lie of the country. I cordially associate myself with what has been said about THE LANCET and the good wishes that all of us have for its future. It has achieved success because it has known how to meet the needs of the medical profession, and I do not at all doubt that it will continue to do so.

"THE CHAIRMAN."

Toast Proposed by the President of the Royal Society.

Sir CHARLES SHERRINGTON said that this memorable occasion had derived no little of its success from the genial chairmanship of Sir Donald MacAlister. Late as was the hour, the gathering must not separate without heartily pledging his health.

THE CENTENARY OF A MEDICAL MISSION.—Sunday, Dec. 9th, will be celebrated as the centenary of the foundation of the Jerusalem Mission of the Church Mission to the Jews. As the work opened in December, 1823, and developed a dispensary side, under Dr. Dalton, an Irish practitioner, within a few months, the event also marks the centenary of modern medical missionary work. This became organised on a permanent basis by the starting in 1844 of a small hospital for the relief of sick Jews by Dr. E. Macgowan, an Exeter doctor, who had joined the mission. This was the forerunner of the fine hospital, the foundation-stone of which was laid in 1895 by Lord Northbrook, which stands to-day as a tribute to the 28 years' work of Dr. Percy d'Erf Wheeler, who went out from St. Thomas's Hospital to Jerusalem in 1886, and is still working for the society in the East End of London. Dr. Wheeler was succeeded for a time by Dr. E. Masterman, now of Camberwell Infirmary. The hospital is now in charge of Dr. H. J. Orr Ewing and Dr. K. W. Kingdon. Miss E. M. Barber is the matron, and is assisted by a staff of 15 British and foreign Christian, Jewish, and Moslem nurses. In-patients number about 1500 annually, and out-patients 6000.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh: Centenary of the Royal (Dick) Veterinary College.

A SERIES of meetings and social functions took place in Edinburgh last week to celebrate the hundredth anniversary of the Royal (Dick) Veterinary College, founded by William Dick in 1823. On Nov. 27th an "At Home" was held in the College by the Principal, Dr. O. Charnock Bradley, at which Sir John MacFadyean, in the name of Emeritus Prof. Duncan McEachran, F.R.C.V.S., of Quebec, Canada, presented to the College a portrait of its founder. In the evening an address was delivered in the University by Prof. Theobald Smith, Director, Department of Animal Pathology of the Rockefeller Institute for Medical Research, Princeton, New Jersey, on Comparative Pathology: Its Biological and Economic Significance. The chair was taken by Sir Alfred Ewing, who referred to Prof. Smith's work in showing Koch to be in error in contending that the bovine tubercle bacillus was not pathogenic to man. Speaking of the relation of animal to human pathology, Prof. Smith pointed out that with the exception of a few diseases, such as rabies, glanders, anthrax, and tuberculosis, most animal diseases did not affect man, but indirectly the relation of the two was important to the welfare of man generally. Thus the study of parasites in animals, such as ascaris in rats and pigs, had pointed the way to treatment of the similar condition in man. Even more generally, comparative pathology was likely to be of service, for the underlying cell processes were the same in all animals, and the study of lower animals in which the factors were less complicated was bound to be of value.

Some Aspects of the Tuberculosis Problem.

At a meeting of the Medico-Chirurgical Society of Edinburgh, held in conjunction with the Tuberculosis Society of Scotland in the Royal College of Physicians on Nov. 29th, Prof. Theobald Smith delivered an address on Some Aspects of the Tuberculosis Problem from the Experimental and Comparative Standpoint. Sir Robert Philip was in the chair. In introducing Prof. Smith, Sir Robert Philip described him as a philosophic pathologist. Prof. Smith's address consisted of gleanings of some 40 years' experience of the problem. He said that the methods of attacking the tuberculosis problem might be grouped under three heads: (1) Preventive, (2) immunisatory, and (3) hæmotherapeutic. With regard to the latter, it was not extravagant to hope that something analogous to quinine in malaria or the arsenical salts in syphilis might be discovered. These might possibly be man's anticipation of methods to be adopted by nature. He went on to give a brief historical sketch of the various problems which had arisen in connexion with tuberculosis since the discovery of the bacillus by Koch in 1882. First came the great attack on the disease from the public health standpoint; then the dramatic introduction of tuberculin in 1890 with its enthusiastic and sanguine reception followed later by disappointment; then arose the discussion as to the path of entry of the bacillus. In 1901 came Koch's dogmatic assertion that the bovine tubercle bacillus did not cause disease in man, and its ultimate refutation. In this connexion Prof. Smith referred to a paper of his own, published three years earlier, pointing out the differences between the two forms. There followed the dispute concerning infection in infancy and childhood, and after that the still disputed question of super-infection. He went on to discuss the contribution of comparative pathology to the solution of these various problems. From this point of view the subject might be approached in one of two ways: by (1) experiments, (2) numerous and thorough autopsies. Experiments were unsatisfactory owing to the modification of the virus by culture. He had had the opportunity to perform 500 autopsies on cows. These presented a series of all stages of the disease. In the majority of these the thoracic lymph glands only were affected. From the distribution of the glands it was possible to say by which part of the respiratory tract the bacillus had entered. In the majority this was the posterior lobe of the lung, corresponding to the lower lobe in human subjects. The frequency of apical infection in man was very possibly due to suppression of the disease in the lower lobes and the greater susceptibility of the upper. Primary disease in cattle was lymphatic, as in children, but the diseases of cattle corresponded to those of childhood and adolescence, as cattle for the most part were killed young. When infection was proved in more than one system, the lesions were all found to be at the same stage, a finding which suggested immunity to fresh infection. The results of the so-called bovo-vaccination experiments showed that in the vaccinated animals the lung lesions were of a broncho-pneumonic character and comparatively mild, whilst those of the controls were miliary and rapidly fatal. This suggested the protective value of small tubercle injections. Public health measures had probably not actually shut the door, as it were, but had reduced the draught. Vaccination, which is nature's method, could not after all be expected to do more than nature, which eliminated the weak. From this point of view there were three groups—namely, those of high resistance for whom vaccination was unnecessary; those of low resistance upon whom it was useless; and those between the two for whom it probably did good. As a biologist he was not hopeful of elimination of the disease, but as a medical man he exhorted all workers to optimism.

The Treatment of Diabetes.

At a meeting of the Partick and District Medical Society on Nov. 22nd Dr. John Gracie delivered his presidential address on Diabetes and Insulin. In the treatment of diabetes, Dr. Gracie said, the essential point was to maintain the blood-sugar well below the threshold value, so that the islet cells of the pancreas might be rested and thus given a chance to regain their full functional activity. The only way to ensure this was by the routine examination of the blood-sugar, since the method of keeping a trace of sugar in the urine not only meant that the islet cells were not being rested, but also might even fail to reveal a hypoglycæmia of transient type. The method adopted by Dr. Gracie was to give all the carbohydrates in the estimated diet in two meals. The dose of insulin was given one hour before each meal, and a blood-sugar estimation performed three hours after the meal. Much stress was laid upon the necessity of combining dietetic with insulin treatment, a necessity not always appreciated by patients whose information was gleaned from the lay press. A basal diet ought always to be calculated, and should be upon a basis of 25 cal. per kg. of body-weight per day. This must include 1 g. protein per kg. of body-weight, while the remainder of the diet was made up of carbohydrate and fat; the former calculated by starving the patient until his urine was sugar-free, and then cautiously adding measured amounts of carbohydrates each day until sugar again appeared in the urine. The type of case suitable for insulin was the one in which a basal diet could not be reached without its aid. Dosage could be estimated upon the basis that one unit of insulin metabolised 2½ g. carbohydrates, although the initial dose should never be sufficient to eliminate sugar from the urine entirely, lest the lack of glycogen in the liver led to hypoglycæmia. He had found that the best diet was one in which the fat only slightly exceeded the protein, his most satisfactory continued diet having been one of carbohydrate 68, protein 114, and fat 127, combined with 30 units of insulin daily—a diet 800 calories over the basal requirements of the case. Additional points of interest were the facts that each change of diet led to an increase in the urinary sugar—even when the carbohydrate in the diet was reduced—the quantity of insulin being kept constant; and that when a

constant diet was maintained the quantity of sugar in the urine always decreased.

On Nov. 23rd Dr. George A. Allan delivered to the Ayrshire Division of the British Medical Association an address entitled Diabetes Mellitus and its Treatment by Insulin. In considering the actual indications for the use of insulin, Dr. Allan held that the more severe the case the more necessary was the treatment and the safer its administration. In coma the results might be brilliant. From the point of view of the general practitioner, who had not the time to devote to blood-sugar estimations, two methods were available. In the former the carbohydrate tolerance was first determined, and the diet was then raised to basal requirements by the gradual addition of carbohydrate and fat, insulin being given before the morning and midday meals in the ratio of one unit of insulin to each additional 2 g. of carbohydrate added. In the second there was no period of starvation, and the patient was put at once on a diet which contained protein well within the ½ g. per pound of body-weight; about 20 g. carbohydrate were added, and fat up to one and a half times the available carbohydrate. If glycosuria persisted, small doses of insulin were given until the urine became just sugar-free. Omission of the blood-sugar tests was never wholly safe, but he warned his hearers that the performance and interpretation of these tests required much practice before the results could be depended upon.

The Lister Ward.

The managers of the Glasgow Royal Infirmary have received a further series of appeals for the preservation of the Lister Ward, from a number of corporate medical bodies—British, colonial, and foreign.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

An Open Letter on the Teaching of Sex Hygiene.

THIS year the Interfraternity Conference[1] submits the annual report of its Social Hygiene Committee in the form of an open letter to the faculties of American colleges and universities. It is entitled "An Appeal for the Greatest Personal and Social Health for Students." The letter avoids with scrupulous care the laying down of any fixed standard for teaching sex hygiene, at the same time suggesting some general principles which may be applicable to the various colleges to whom the letter is addressed. Most students, they assert, come to college with very partial and even false notions of the place sex has in normal personal and social life. Many have already entered upon anti-social sex-expressions; others who have really social standards and ideals in reference to sex hold these without intellectual understanding, and accompanied often by unsatisfied emotional tensions. It is certainly futile to enforce dogmatically on such students the orthodox restraints of convention. The Committee believes it to be equally pernicious merely to place before immature and highly sexed young people the biological, psychological, and social facts and theories about sex in a coldly scientific way, and leave them to make an inexperienced and unguided choice of reaction in emotion and conduct. The facts and theories should be taught and sympathetically interpreted. The whole social life and relations of the institution must constitute a practical example of the working out of its ideals. An account is given of various methods that have been used to teach sex hygiene in American colleges. The occasional lecture, though it may have its place, is felt to be quite inadequate to meet the whole need of the students. A unified course, obligatory for all freshman students, is another method. The Committee feels it desirable that such a course be given by one lecturer, whenever a man with the requisite ability can be found. Again, the subject may be naturally introduced into various courses, such as those in biology, psychology, physical education, personal hygiene, English literature, and sociology. Among the "facts and theories" which ought to be expounded are the following: the nature and significance of reproduction, the nature of sex and its relation to reproduction, the influence of heredity and environment upon the individual, the phenomena and explanation of puberty, the relation of sex and its development to emotional, æsthetic, and social life, the evolution of parenthood, the home and family life, true monogamy as the corollary of sex equality, the making of a successful home.

The following are considered to be fundamental fallacies which must be frankly dealt with: (1) That sex intercourse is necessary either to man or woman for perfect sexual development, for bodily or mental health, or for happiness and usefulness. (2) That abstinence is impossible for men. (3) That men have some special rights of indulgence which cannot be allowed to their mothers, sisters, wives, and daughters. (4) That a period of sowing "wild oats" is necessary for the development of sexual control and poise. (5) That continence is a sign of weakness. (6) That a man who has enjoyed a gross sex life can subsequently enjoy completely the happiness of equal democratic marriage. (7) That illicit sex intercourse is at worst an indiscretion. This paper is clearly the result of careful thought and investigation; it deserves consideration by the numerous body of teachers to whom it is addressed. The problem in England may be somewhat modified by the more highly selected character of university students, but it is not impossible that this study might also prove suggestive to English professors and deans.

Public Health Exhibit in New York.

During the week Nov. 5th–12th the U.S. Public Health Service, in coöperation with the American Marine Association, held an exhibit at the Grand Central Palace, New York, demonstrating the health work carried on among American seamen. The exhibit covered some 800 square feet of floor space, and included surgical and dental and X ray equipment, apparatus for hydrotherapy and physiotherapy, a model ship's medicine chest, and so forth. The latter item, designed for a crew of from 40 to 60 men, attracted a good deal of attention. The names of those interested in this chest were recorded, and full particulars will be furnished to them later by the U.S. Health Service. Also a manual entitled "A Ship's Medicine Chest and First-aid at Sea" is said to be now in preparation, and will be mailed to those interested as soon as it is printed.

Lecture demonstrations and first-aid courses have now been established by the Public Health Service in 43 American cities. Medical advice is given by radio upon request from vessels at sea by the stations at New York, Key West, New Orleans, San Francisco, Honolulu, and Manilla. Numerous cases of serious illness have been successfully handled by wireless diagnosis and prescription.

[1] Secretary, A. Bruce Bielaski, 120, Broadway, New York.

INDIA.

(FROM OUR OWN CORRESPONDENT.)

Cholera in Bombay.

THE cholera epidemic which occurred in Bombay in the rains subsided in the first week of September. 274 cases in all were notified in the months of July and August, and of this number 155 proved fatal. A striking feature in the epidemic was that the number of cases notified daily having risen to an average of 25, fell from 26 on August 2nd to eight on August 3rd, the day on which the amount of bleaching powder added to the city water-supply was increased from 4½ to 7 lb. per hour. From this date onwards the number of cases continued to fall till no further notifications were received. It was a singularly

unkind fate which decreed that the results should thus have been too good by a few days only to be true, and too immediate to enable the Health Department to accept without reserve the credit of terminating the epidemic by sterilising the water. Certain features in the outbreak suggested the possibility of water-borne infection. The cases were widely scattered, and in the only ward receiving no water from the lake supply under suspicion no case occurred in July, whilst four only occurred in August. On the other hand, 28 imported cases of cholera, chiefly among pilgrims, had occurred in the city in the month of June, whilst cholera was rife in June, July, and August in districts communicating freely with Bombay. Further, whilst cases were notified by ones and twos in each of the seven wards of the city, epidemic incidence was limited to C ward, where 103 deaths occurred as against a maximum of 16 deaths in the other six divisions. This unequal incidence in wards, mostly supplied from the same source, is against the theory of water-borne infection, but however this may be the water-supply of the city is in the near future to be above suspicion. In 1925 the water from Tansa Lake will be brought throughout its course of 70 miles in closed pipes, instead of passing as at present through 26 miles of a dilapidated masonry aqueduct into which quantities of surface water find their way during the monsoon. Chlorination can be carried out at any time, and a scheme has been prepared for providing the added safeguard of passing the whole of the supply through rapid filters.

Dengue.

Dengue, a familiar visitant in Calcutta, has till recently been rare in the Bombay Presidency. Early in the year, however, cases began to occur in the city of Bombay, and were followed by a considerable epidemic which has now begun to decline. The disease has also appeared in other parts of the Presidency, in Delhi, and elsewhere. The patients, as usual, find they are by no means out of the wood on the termination of the acute attack, and many suffer from pain in some muscle, tendon, or joint for a number of weeks after resuming their ordinary mode of life. The comparative immunity to the disease hitherto enjoyed by Bombay is difficult to explain, and is in any case not due to any dearth of the reputed carriers—*Stegomyia fasciata* and *Culex fatigans*.

Humidification in Indian Cotton Mills.

A valuable report on Humidification in Indian Cotton Mills by T. Maloney, M.C., has been received by the Government of India. The report shows that even at very high wet-bulb temperatures the body temperature of the workers in mills does not at the end of a day's work rise any higher than it does among workers in other trades under better conditions. Fatigue and a consequent fall in efficiency is, however, well marked at the end of the day. Whilst the physique of the average mill-hand is poor, that of the weavers, contrary to expectation, was found to be better than that of workers employed in other departments under less trying atmospheric conditions. This is probably due to the fact that those of poor physique cannot stand the strain of work in the weaving rooms. Weight decreases after a few months' continuous service in a mill, and apart from actual signs of tangible injury to health there is abundant evidence to show that the workers suffer from subjective sensations of discomfort and distress. As to the practicability of reform it is of interest to note that in one mill run on model lines, notwithstanding the tropical climate, the temperatures compare favourably with those often recorded in some English mills during the summer months.

Housing.

The annual report of the Development Directorate shows that their vast housing scheme for the city of Bombay has made good progress. Out of 50,000 one-room tenements to be provided, 2720 in 60 new buildings were let or ready to let on March 31st, 1923. For the relief of congestion several square miles of land are to be added to the city by the reclamation works now advancing rapidly in Back Bay. On account of the deplorable epidemics of malaria which have in the past accompanied reclamation works in Bombay itself and elsewhere, the operations of the Directorate in Back Bay naturally give rise to a good deal of anxiety. To allay the apprehension felt and to forestall danger, the Government has appointed an advisory sanitary committee to work in close touch with the officer selected by the Directorate to organise anti-mosquito and other sanitary measures over the whole of the areas to be reclaimed. That the situation is well in hand may be judged from the report recently presented by Lieut.-Colonel S. R. Christophers, I.M.S., Director under the Government of India of the Central Research Institute at Kasauli, who has been permitted by the Government to advise as to the precautions to be taken. In the concluding paragraph of his report Colonel Christophers says: "I think the position of the committee in regard to the control of malaria on the reclamation area is sound. Under present arrangements it is practically impossible that any serious increase in anopheles could arise without this being at once fully appreciated, and should such increase occur I see no reason to doubt that effective measures could be at once found to deal with it."

Small-pox.

Except for the recent occurrence of a few cases of small-pox, serious infectious disease is at present practically absent in the city of Bombay. The death-rate remains low, and should no untoward event occur in the next six weeks, the rates for the year, despite the cholera epidemic, should, according to Bombay standards, be satisfactory.

Bombay.

The Services.

REWARD FOR GALLANTRY.

Surg.-Comdr. William Perceval Hingston, R.N., has been appointed a Member of the Military Division of the Third Class, or Companion of the Most Honourable Order of the Bath, in recognition of the gallant conduct he displayed and the valuable services he rendered on the occasion in September last of the destruction by earthquake and fire of the R.N. Sick Quarters, Yokohama, when by his gallantry and presence of mind he was the direct means of saving the lives of the large number of refugees who sought escape from the fire in the hospital grounds.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Capt. Sir R. Bankart, medical officer of the Royal Yacht *Victoria and Albert*, to be Surg.-Rear Admiral.

Surg. Comdr. E. D. Rutherford is placed on Retd. List at own request.

Surg.-Lt. Comdrs. to be Surg. Comdrs.: A. B. Clark, G. B. Cockrem, M. R. Thatcher, E. St. G. S. Goodwin, G. D. Mackintosh.

Surg. Lt. (Emergency List) A. G. Bee is reinstated on Active List.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. A. L. Scott and Maj. C. Cassidy retire on ret. pay.

Capt. P. G. Tuohy retires, receiving a gratuity.

Temp. Capts. relinquishing their commns. and retaining the rank of Capt.: F. M. Davies, M. Ferguson, and R. R. H. Wonnacott.

Capt. B. C. O. Sheridan relinquishes the actg. rank of Maj.

Temp. Capt. L. H. Walsh relinquishes his commn. and retains the rank of Capt.

MILITIA.

Capt. J. B. Irving relinquishes his commn. and retains the rank of Capt.

ROYAL AIR FORCE.

Flight Lt. W. J. G. Walker is granted a permanent commission.

R. W. White is granted a short service commission as a Flying Officer.

Correspondence.

"Audi alteram partem."

RESPONSIBILITY OF THE CRIMINAL LUNATIC.

To the Editor of THE LANCET.

SIR,—The Report of the Committee upon Insanity and Crime cannot be said very appreciably to have clarified the difficulties it was constituted to consider. Without doubt several of its members were at least sympathetically inclined to accept the medical case, but unhappily this case was not presented by a united voice. The result will probably be that a widely diffused but mild satisfaction will be felt by the mass of the two professions concerned; while the general public, so far as in cold blood and uninfluenced by any immediately outstanding case in point it is at all concerned, will be indifferent. The medico-psychological world will welcome a further diminution of the field of criminal responsibility, and the legal world will, perhaps, be somewhat, though not seriously, apprehensive that "the observance of the law" may further "be gravely hindered" by the inclusion of such nebulous mental material as impulses "which the prisoner was by mental disease in substance deprived of any power to resist."

In the Middle Ages insanity afforded no legal defence. In 1670 the great lawyer Hale wrote that partial insanity is no excuse, and it is really only within the last hundred years that, with the growth of humanitarianism in the administration of the law and of psychology in the practice of psychiatry, the problem of defining responsibility has become prominent. The solution of the problem certainly becomes no easier as the years move on. On the one hand, the importance of the doctrine of inescapable personal responsibility becomes clearer as the scientific investigation of ethics, law, and sociology becomes more profound. Without it even our language would have to be remodelled. On the other hand, the analytic investigation of the evolution of the mind, whether in the race or in the individual, shows more and more that growth depends upon factors over which the individual can be said to have but slight, if any, control.

It is with those considerations before him that the physician so often appears to the lawyer to be unduly hesitant in the question of responsibility. Few will be found to disagree with the committee "that a person may be of unsound mind and yet be criminally responsible," but the difficulty of the physician at once arises when he attempts to disentangle the unsoundness and the responsibility. In practice he finds it impossible, and, perhaps inclining too much to the merciful and too little to the judicial aspect of the case, passes to the position that it is better to excuse any accused person who presents any symptoms of insanity than to punish one whose act has, in fact, been the result of morbid mental processes, although the connexion between the act and the processes is not obvious, or rational, or even likely.

Much of our difficulty and controversy really depends on the unscientific treatment of most of our criminals and the irrevocable character of punishment. To hang a man as an act of retribution or as a warning to others for an act for which he was not responsible is clearly contrary to the ethical sense of our civilisation. To condemn him under similar circumstances to a term of imprisonment, though not so revolting, is calculated to burden the general conscience. It is likely that in the future the notion of mitigated responsibility will become more prevalent. The bald problem of whether a criminal is responsible or not will be exchanged for the problem as to how far heredity, education, and environment have qualified his responsibility, and sentences will vary with the findings of an examination of these factors. Punishments in their turn are likely to be compounded less of retributive and preventive elements and more of the corrective or ameliorative element. Changes of this character will, of course, take time to become widely operative, but in the meanwhile the medical profession may think with pleasure that such changes of a scientific character are slowly but surely making their appearance, and are due almost wholly to the work of its members.—I am, Sir, yours faithfully,

Harley-street, Dec. 2nd, 1923. E. D. MACNAMARA.

GENERAL ELECTION: THE ENFIELD SEAT.

To the Editor of THE LANCET.

SIR,—Local considerations and conditions led me to the decision *not* to contest the Enfield division at this election, thereby making a three-cornered contest: but I have been asked, and have agreed, to be the prospective Liberal candidate for the next election.

I am, Sir, yours faithfully,

R. LESLIE RIDGE.

Enfield, Middlesex, Nov. 29th, 1923.

NASAL SINUSITIS IN PHTHISIS.

To the Editor of THE LANCET.

SIR,—I do not think the citation of Skillern by Dr. A. L. Yates (THE LANCET, Dec. 1st, p. 1211) tells for his contention that frontal and ethmoidal sinusitis do not complicate the diagnosis of chest affections; for Skillern's conclusion was that ordinary maxillary sinusitis was not over-common in tuberculosis. Moure's conception of nasal defect in phthisis I mentioned deprecatingly in my letter as well as in my book; but also with the implication that it was far nearer the truth than the proposition that these nasal changes are the result of tuberculosis, which is what Dr. Yates had advanced. As to packing the nose of ozænatous consumptives with cyanide gauze, that was merely on a single occasion, "for an hour or so," to remove crusts, deodorise, and abate the nuisance to fellow sanatorium patients. The above indicate differences real enough, but such as will diminish. If Dr. Yates publishes his protocol, he will add to the scanty exact record, and thereby to our knowledge.

I am, Sir, yours faithfully,

Dec. 2nd, 1923. W. C. RIVERS.

MATERNITY NURSING HOMES.

To the Editor of THE LANCET.

SIR,—In connexion with the efforts of the medical profession to lower both the present existing high mortality and illness from puerperal sepsis, may I call attention to one of the types of maternity home which are springing up like mushrooms throughout the country, especially in the poorer areas of the large cities. The public, in response to the teaching of the profession, is beginning to appreciate the advantages that accrue when a confinement is properly conducted in a well-equipped institution or nursing home. With the demand the supply has naturally increased, but it behoves the profession to watch carefully that the good is not undone by new evils arising in its midst. I refer to the small dirty house, owned and presided over by a woman frequently covered by the diploma of the C.M.B., into which patients are taken for the purpose of their confinement. Houses of this type are popular with the masses, and apparently are a financial success to the owner. No medical man enters unless something goes wrong, and then it is often too late. The midwife, however, is "covered" because she has called in medical help.

It is no uncommon thing in the out-patient department of a hospital to trace many cases of pelvic inflammation to the "care" bestowed upon the patients in houses of this type. It is one thing to train a woman for the diploma of the Central Midwives Board. It is another to train her, without long and detailed hospital experience, to equip and manage a maternity home. As often as not it is the uneducated type of the C.M.B. diplomée who appears to fall into the error of attempting such a proposition.

The result is that the "maternity home" of this type is nothing more than an ordinary dirty house in which one or more women wear uniforms, and where repeated vaginal examinations are made at considerable risk to the unfortunate patients, who pay for the mythical security which the blessed word "home" suggests. Instances have been brought to my knowledge of places of this description where no temperatures are taken, catheters are not available, and even where septic patients—e.g., inoperable carcinoma—are being attended by the same woman.

How can this state of things be altered? It is a difficult matter for obvious reasons for an individual practitioner to act, especially if a "home" of this type happens to be in his immediate district. Cannot a solution be found in the inspection and possible registration of all maternity nursing homes and institutions where pregnant women are taken for the purpose of their confinement? Periodical inspection would be no hardship, and, from information that I have obtained, would be welcomed by homes of repute. At the same time it would put an end to that other type of home run purely as a financial concern at the expense of the health of the mothers of the nation.

I am, Sir, yours faithfully,

BECKWITH WHITEHOUSE,
Honorary Obstetric Officer, General Hospital, Birmingham: Examiner to the Central Midwives Board, &c.

Nov. 27th, 1923.

A CORRECTION.

To the Editor of THE LANCET.

SIR,—In a lecture which I delivered this week as Gresham Professor of Physic before the National Union of Teachers upon Fatigue and Sleep, I am reported to have said that I had discovered a vaccine which I was using to combat fatigue. This, of course, is wholly inaccurate and has caused me much annoyance. I read my lecture from a carefully prepared manuscript. I referred to the work of Drs. Myers, Stanley Kent, and Vernon, as also to that of Mosso, Crile, Cannon, Miss May Smith, and others. I pointed out that fatigue was probably caused by the accumulation of intra- and extra-neuronic toxins; but that the body had power to form "antibodies," or antitoxins, to combat these; and if ever their nature could be ascertained, a vaccine might not impossibly be prepared to antagonise the feelings associated with fatigue. No press notices were submitted to me.—I am, Sir, yours faithfully,

ROBERT ARMSTRONG-JONES.

Bramham Gardens, S.W., Dec. 1st, 1923.

DONATIONS AND BEQUESTS.—By the will of the late Sir Albert John Hobson, of Sheffield, the testator left such part of his promised gift of £5000 to Sheffield University as has not been paid, together with any duties payable thereon, to the said University.—The Chelsea Hospital for Women and the Bolingbroke Hospital each receive £100 under the will of the late Mr. A. F. Hall of Battersea.—Mr. S. Bunning of Borrowshaw, who started life as a railway porter at Derby and afterwards was manager of a brewery at Beeston, Nottingham, walked into Derby Infirmary and handed the secretary £1000 in notes to endow a bed in memory of his late wife. He then visited the Railways Servants' Orphanage and left notes for £670.—Mr. Samuel Maurice Marcus, the triple millionaire of Redhill, Surrey, left £10,000 to the Reigate and Redhill Hospital, £5000 to Guy's Hospital, £1000 each to the London Hospital, Dr. Barnardo's Homes, Royal Institution, London, and Jewish Board of Guardians.—Dr. John William Pare, M.D., L.D.S., of Golders Green and Cavendish-square, left estate of the gross value of £23,472. Failing issue to both his daughters he left £1000 to the Royal Society of Medicine, upon trust for investment, and to apply the income in support of any investigation for the advancing of the art of healing, this fund being named the Margaret Edmondson Pare and Arthur Henry Pare Trust; £500 to the University Court of the University of Edinburgh, for the medical faculty of that University, provided that his name be permanently associated with this bequest; and £500 to University College Hospital, London, for the dental department, with a similar provision as to the association of his name.

Medical News.

UNIVERSITY OF OXFORD.—The following candidates satisfied the examiners in the recent examination for the Diploma in Public Health:—

Part I.—J. G. Johnstone, A. A. E. Newth, H. Shannon, and A. C. Tibbits.

Part II.—W. H. Butcher, H. W. Hardy, A. A. E. Newth, H. Shannon, A. C. Tibbits.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—J. B. Couche, Toronto; J. E. Elam, Cambridge and St. Bart.'s Hosp.; S. Halperin, St. Thomas's Hosp.; J. B. Sweet, Glasgow; and S. Thompson, Leeds.

Medicine.—J. E. Elam, Cambridge and St. Bart.'s Hosp.; E. J. R. MacMahon, St. Thomas's Hosp.; W. McLaren, Durham; D. Parsons, Charing Cross Hosp.; and L. Statnigrosch, Middlesex Hosp.

Forensic Medicine.—J. E. Elam, Cambridge and St. Bart.'s Hosp.; and D. Parsons, Charing Cross Hosp.

Midwifery.—P. V. Casling and E. J. Creais, St. Mary's Hosp.; J. E. Elam, Cambridge and St. Bart.'s Hosp.; E. J. R. MacMahon, St. Thomas's Hosp.; W. McLaren, Durham; I. Morgan, St. Mary's Hosp.; D. Parsons, Charing Cross Hosp.; F. R. Ratnagar, Guy's Hosp.; M. A. E. Somers, Bristol; J. B. Sweet, Glasgow; and E. W. Warne, Guy's Hosp.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: J. E. Elam, S. Halperin, D. Parsons, M. A. E. Somers, and S. Thompson.

UNIVERSITY OF LONDON: *London Inter-Collegiate Scholarships Board.*—Eleven medical entrance scholarships and exhibitions of an aggregate total value of £1134, tenable in the Faculty of Medical Sciences of University College and King's College, and in the medical schools of King's College Hospital, University College Hospital, the London Hospital, and the London (Royal Free Hospital) School of Medicine for Women are being offered. The examinations will commence on April 28th and June 24th, 1924. Full particulars and entry forms may be obtained from the secretary of the board, Mr. S. C. Ranner, M.A., Medical School, King's College Hospital, Denmark Hill, London, S.E. 5.

SMALL-POX IN ENGLAND AND WALES.—Cases of small-pox occurring during the week ended Nov. 24th were reported in the following sanitary areas: Derbyshire 9 (Chesterfield 1, Heanor 6, Blackwell R.D. 1, Shardlow R.D. 1); Gloucestershire 11 (East Dean R.D.); Notts 19 (Hucknall 12, Kirkby-in-Ashfield 3, Basford R.D. 1); Yorks W.R. 1 (Bentley-with-Arksey); Port of Cardiff 1.

TUBERCULOSIS SOCIETY.—A meeting will be held on Dec. 14th, at 8 P.M., at the Margaret-street Hospital, Margaret-street, London, W., when a paper on Operative Fixation for Caries of the Spine will be read by Mr. R. Milne.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—A meeting of this Society will be held at the Miller General Hospital, Greenwich, on Friday, Dec. 14th, at 8.45 P.M., when the Purvis Oration will be delivered by Sir Thomas Horder on Carcinomatosis.

THE INHERITANCE OF MENTAL DEFECTS.—An illustrated lecture on this subject will be held on Dec. 13th, at 8 P.M., at Essex Hall, Strand, W.C., by Prof. E. W. MacBride, F.R.S., under the auspices of the Society for Constructive Birth Control and Racial Progress. Dr. Marie Stopes will preside.

IRISH MEDICAL SCHOOLS' AND GRADUATES' ASSOCIATION.—The autumn dinner was held at Pagani's Restaurant, London, on Nov. 27th. Sir William Taylor presided, the guest of the evening being Surgeon Vice-Admiral Joseph Chambers. Over a hundred members of the Association and friends were present and an enjoyable evening was spent. The next dinner will be held on St. Patrick's Day, March 17th, 1924.

SOCIETY OF MEDICAL OFFICERS OF HEALTH: MATERNITY AND CHILD WELFARE GROUP.—Dr. Harold Scurfield will deliver his presidential address, entitled Lines of Advance in Maternity and Child Welfare Work, at 5 P.M., on Dec. 14th, at 1, Upper Montague-street, Russell-square, London, W.C. Medical practitioners interested in maternity and child welfare work are invited to be present.

ROYAL INSTITUTION.—At a general meeting held on Dec. 3rd, Sir James Crichton-Browne being in the chair, it was announced that Mr. Joseph Barcroft, F.R.S., has been elected Fullerian Professor of Physiology in succession to Sir Arthur Keith. Special thanks were returned to Dr. Rushton Parker for his donation of £100 towards the improvement of the library.

Sir Humphry Rolleston has accepted the chairmanship of the Propaganda Committee of the National Association for the Prevention of Tuberculosis.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.—A meeting will be held at the Elizabeth Garrett Anderson Hospital on Dec. 11th at 8.30 P.M., when Dr. Agnes Savill will read a paper on the Sun Cure at Leysin.

AT the close of the Brussels Cancer Conference on Nov. 23rd, it was decided to organise an international association to fight cancer, with Dr. F. M. Bergonié, professor of biological physics at Bordeaux University, as chairman of the provisional committee.

THE King has sanctioned the following appointments to the Order of the Hospital of St. John of Jerusalem in England: Lieut.-Colonel Gerald Hamilton Goddard, R.A.M.C., Dr. Hugh Falconer Oldham, and Lieut.-Colonel William Booth Skinner, S.A.M.C., to be Knights of Grace.

GRAPHIC METHODS IN HEART DISEASE.—Two lectures, illustrated by lantern slides, will be delivered on this subject by Dr. John Parkinson on Dec. 17th and 19th, at 4.30 p.m., in the Anatomical Theatre of the London Hospital College. The lectures are free and are intended for senior students of the hospital and post-graduates.

MEMORIAL TO THE LATE PROF. DELÉPINE.—A bust in bronze, by Mr. John Millard, of the late Prof. S. Delépine, of the University of Manchester, will be unveiled by Sir George Newman at the Public Health Laboratory, Manchester, on Dec. 12th. The bust will be placed in a marble niche on the staircase of the laboratory.

CANCER HOSPITAL.—A course of post-graduate lectures will be delivered at the Cancer Hospital (Free), London, S.W., weekly during the months of January, February, and March, 1924, dealing with various aspects of cancer. Any registered medical practitioner or student who wishes may attend, without tickets. The syllabus of the lectures will be published later.

ROYAL NORTHERN HOSPITAL.—On Nov. 27th H.R.H. the Prince of Wales opened the new casualty department at the Royal Northern Hospital, which is the borough of Islington's war memorial. The new building, with equipment, cost nearly £16,000, and of this sum £12,000 has been already subscribed through the efforts of the Islington War Memorial Committee, the corporation, and many individual helpers.

INDUSTRIAL HYGIENE.—With a view to contributing towards the study of occupational diseases and industrial health the International Labour Office undertook some time ago to draw up a list of unhealthy occupations. This entailed the examination of a large amount of statistical, chemical, and medical information, the publication of which has been approved, as it is considered likely to be of great value to medical men and to all persons interested in labour questions. The intention is to publish, under the title Occupation and Health, a complete encyclopædia of industrial health and pathology, which will give the reader the most recent and carefully checked information at the disposal of an international organisation. The articles dealing with industrial poisons, infectious diseases, and the general account of matters relating to poisoning and infection, to personal health, sanitation, and medical treatment will be published first. There will follow short monographs on the industries likely to injure the life or health of workers. The final series will discuss general questions of industrial physio-pathology. A number of experts from all countries have already promised to collaborate in this work, and it seems likely that the publication of their collated experience will prove of considerable importance.

NATIONAL TEMPERANCE LEAGUE.—Sir Thomas Barlow, first medical President of the League, was welcomed by a representative body of members and associated temperance workers in the Council Chamber of Caxton Hall, Westminster, on Nov. 30th, when he delivered an address dealing with Prof. E. H. Starling's recent book, "The Action of Alcohol on Man." He pointed out that it departed from impartial presentation by the general implications made in favour of the ordinary use of alcohol on grounds other than scientific. Alluding to the loss the League had sustained by the death of its oldest vice-president, Dr. Clifford, the President referred to the fact that some 35 years ago he had examined Dr. Clifford for life insurance, and stated that Dr. Clifford's policies had more than doubled in value before maturity. Brief speeches were made by the Bishop of Croydon, Lord Clwyd, Mr. W. McAdam Eccles, Mr. Arthur Evans, and Dr. Basil Price, testifying to the regard felt for Sir Thomas Barlow, and congratulating the League on its new President.

THE HARBEN LECTURES, 1923.—These lectures will be delivered in the theatre of the Royal Institute of Public Health (37, Russell-square, London, W.C.1) by Prof. D. Levaditi, M.D., Institut Pasteur, Paris, on Tuesday, Wednesday, and Thursday, Dec. 11th–13th, at 5 P.M. The subjects of the three lectures are: (1) Neurotrophic Virus (Encephalitis Herpes); (2) Neuro-vaccine; (3) New Discoveries in the Treatment and Prophylaxis of Syphilis. The lectures will be delivered in English, and all interested are invited to attend.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Dec. 10th.

WAR: at 5 P.M.
Paper:
Surg.-Commander D. H. C. Given, R.N.: An Inquiry into the Causes Underlying the Mosquito Nuisance in the Alvestoke (Hants) District, and the Initiation of Measures of Control.
A discussion will follow.

Tuesday, Dec. 11th.

ANNUAL DINNER of the Society, Hotel Victoria, London, at 7.30 P.M.

THERAPEUTICS AND PHARMACOLOGY: at 4.30 P.M.
Papers:
Prof. F. R. Fraser: Some Aspects of Cardiac Dyspnœa.
Dr. Claude Wilson: The use of Opium in Cardiac Dyspnœa.

Wednesday, Dec. 12th.

PSYCHIATRY: at 8.30 P.M.
Paper:
Dr. W. L. Templeton and Dr. Henry J. MacBride: The Malaria Treatment of G.P.I.

Thursday, Dec. 13th.

NEUROLOGY: at 8.30 P.M.
Paper:
Dr. F. L. Golla: Electromyographic Studies of Voluntary Movements.

Friday, Dec. 14th.

CLINICAL: at 5.30 P.M. (Cases at 5 P.M.)
Cases:
Dr. Neil Hobhouse: Progressive Neural Muscular Atrophy.
Dr. Bernard Myers: Adiposis Dolorosa.
Dr. C. F. T. East: Congenital Morbus Cordis.
Other cases will be shown.

OPHTHALMOLOGY: at 5 P.M., at the Central London Ophthalmic Hospital, Judd-street, W.C.
Clinical meeting.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. 1.
MONDAY, Dec. 10th.—8–30 P.M., Discussion on Intracranial Hæmorrhage in New-born Children, its Pathology, Effects, Treatment, and Results. To be introduced by Mr. Eardley Holland and Dr. H. Charles Cameron, and followed by Dr. Farquhar Buzzard, Mr. Laming Evans, Dr. Sidney Owen, Mr. H. A. T. Fairbank, Dr. J. B. Mennell, Dr. L. G. Phillips, and Dr. E. Bellis Clayton.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.
THURSDAY, Dec 13th.—At 8.15 P.M. a Laboratory Meeting will be held at the London School of Tropical Medicine, Endsleigh-gardens, Euston-road. The following, amongst others, will give demonstrations: Major R. G. Archibald: A New Protozoon in Man. Surg. Rear-Admiral Sir Percy Bassett-Smith: Scurvy in Guinea-pigs. Dr. W. Broughton-Alcock: Exudate from a case of Spirochætal Catarrh of the Antrum. Major T. L. Bomford, I.M.S.: Trichonocardiasis of Hair. Dr. R. St. John Brooks: Post-mortem Appearances of Meliodiosis in Guinea-pigs (slides of the Causal Organism *B. whitmori*). Dr. J. T. Duncan: The Effect of "Bayer 205" in Kala-azar. Colonel S. P. James, M.D.: The Parasites of Inoculated Malaria in England (in General Paralytic Patients). Mr. B. Jobling: Life-History of Ornithodorus Monbata. Colonel Clayton Lane, M.D.: Direct Centrifugal Flotation for the Accurate Concentration of Ankylostome Eggs. Dr. P. H. Manson-Bahr: Pel-Ebstein Disease. Dr. P. H. Manson-Bahr: Living Embryos of *Loa loa* Stained by Sharpe's Method in vivo. Dr. H. B. Newham: A Series of Malaria Slides from British Honduras. Dr. Graham Willmore: Rare Streptothrical Infection of Liver and Kidney. Dr. H. M. Woodcock: Rickettsia Bodies from Normal Lice.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE, 1, Wimpole-street, W.
MONDAY, Dec. 10th, to SATURDAY, Dec. 15th.—Hampstead General Hospital, Haverstock-hill: Special Intensive Course (second week).—Royal Westminster Ophthalmic Hospital, Charing Cross: Clinical Instruction every afternoon from 2 P.M.; Tuesday and Thursday at 10 A.M.—St. John's Hospital (London School of Dermatology): Clinical Demonstrations twice daily at 2 and 6 P.M.; Saturday, 2 P.M. only.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
MONDAY, Dec. 10th.—10 A.M., Mr. Maingot: Surgical Pathology. 12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards.
TUESDAY.—10 A.M., Dr. Drummond Robinson: Gynæcological Operations. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Banks-Davis: Nose, Throat and Ear Dept.
WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 12.15 P.M., Dr. Burnford: Medical Pathology. 2.30 P.M., Mr. Donald Armour: Surgical Wards.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 11 A.M., Mr. Simson: Gynæcological Demonstration. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.
FRIDAY.—10 A.M., Mr. Dudley Buxton: Dental Dept. 11 A.M., Dr. McDougal: Electrical Dept. 2 P.M., Mr. Sinclair: Surgical Out-patients.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose and Ear.
Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.
TUESDAY, Dec. 11th.—5 P.M., Dr. A. Whitfield: Fungus Infections.
THURSDAY.—5 P.M., Dr. W. Griffith: Eczema.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.
THURSDAY, Dec. 13th.—5 P.M., Mr. L. G. Phillips: Tumours Complicating Childbirth.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Dec. 12th.—4 P.M., Mr. H. T. Herring: The Disposal of the Dead, with Special Reference to Cremation.

THE PEOPLE'S LEAGUE OF HEALTH, 12, Stratford-place, Oxford-street, W.
Eight Lectures on the Mind and What We Ought to Know About It, at Hamilton House, Mabledon-place, W.C.
WEDNESDAY, Dec. 12th.—6 P.M., Seventh Lecture, Dr. W. A. Potts: Crime and Delinquency.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES.
TUESDAY, Dec. 11th.—(At the Royal Infirmary.) 3.30 P.M., Mr. Kerr: Nasal Polypi.
FRIDAY.—(At the Royal Hospital.) 3.30 P.M., Mr. Garrick Wilson: Injuries in the Neighbourhood of the Elbow-Joint.

MANCHESTER ROYAL INFIRMARY.
TUESDAY, Dec. 11th.—4.15 P.M., Dr. A. H. Holmes: Demonstration of Cases.
FRIDAY.—4.15 P.M., Mr. S. R. Wilson: Recent Improvements in Anæsthesia.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES.
(At 3.30 P.M.)
MONDAY, Dec. 10th.—(At the Hospital for Women.) Dr. Leith Murray: Some Points in Gynæcological Diagnosis.
TUESDAY.—(At the Maternity Hospital.) Miss Ivens: Indications for Cæsarean Section.
WEDNESDAY.—(At the St. Paul's Eye Hospital.) Mr. Thos. Stevenson: Clinical Cases.
THURSDAY.—(At the St. George's Skin Hospital.) Dr. F. H. Barendt: Skin Cases.
FRIDAY.—(At the Eye and Ear Infirmary.) Mr. Lethart: The Modern Treatment of Chronic Middle-ear Disease.

Appointments.

ALEXANDER, J., M.B., B.Ch. Belf., has been appointed Resident Surgeon to the Londonderry Infirmary.
GALBRAITH, A. L., M.B., Ch.B., House Surgeon, North Lonsdale Hospital.
GRIFFITHS, G. B., M.R.C.S., L.R.C.P. Lond., Medical Director of Prisons, to be one of the Commissioners under the Prison Act, 1877.
LUMSDEN, H. F., M.B., Ch.B. Edin., Certifying Surgeon under the Factory and Workshop Acts for the Lyme Regis District of the County of Dorset.
PHILLIPS, J. W. G., F.R.C.S. Eng., L.R.C.P. Lond., Chief Resident Medical Officer, Lake Hospital and Poor-law Institution, Ashton-under-Lyne.
TAYLOR, R. J. O., M.B., Ch.B., D.P.H. Edin., Resident Medical Officer, Wandle Valley Joint Hospital.
King Edward VII. Hospital, Cardiff: JONES, A. M., M.D. Edin., F.R.C.S. Edin., Hon. Assistant Surgeon to the Ear, Nose, and Throat Department; and MCFARLANE, J., L.R.C.P. & S., L.D.S. Eng., and SPIRIDION, C., L.D.S. Eng., Hon. Dental Surgeons.

Vacancies.

For further information refer to the advertisement columns.

Belgrave Hospital for Children, 1, *Clapham-road, S.W.*—Asst. P. 50 guineas.
Birmingham Orthopædic Centre (Ministry of Pensions).—Two Jun. M.O.'s. Each £350.
Blackburn and East Lancashire Royal Infirmary.—Third H.S. £250.
Bristol General Hospital.—Hon. Clin. Assts. Sen. Res. M.O. £250.
Buxton, Devonshire Hospital, Derbyshire.—Asst. H.P. £150.
Cancer Hospital, Fulham-road, S.W.—H.S. £100.
Colonial Service, British Guiana.—Three Asst. Govt. M.O.'s. £500.
Derbyshire Royal Infirmary, Derby.—Two H.S.'s. Each £200.
Eastbourne, Princess Alice Memorial Hospital.—Res. H.S. £175.
East London Hospital for Children and Dispensary for Women, Shadwell, E.—Two Cas. O.'s. Each £120.
General Lying-in Hospital, York-road, Lambeth, S.E.—Res. M.O. £100. M.O. for Infant Welfare Centre.
Hellingly, East Sussex County Mental Hospital.—Visiting Ophth. S.
Johannesburg, South African Institute for Medical Research.—Asst. Pathologist. £800.
London Homœopathic Hospital, Great Ormond-street, W.C.—Asst. P. for Dis. of Women.
London Lock Hospital, 91, *Dean-street, W.*—Clin. Assistantship.
London Lock Hospital, 283, *Harrow-road, W.*—Second H.S. £150.
Manchester Royal Infirmary.—Hon. Ophth. Surg. Sen. Med. Reg. £150.
Middlesex Hospital and Medical School, W.—Eight Registrarships. Each £300.
National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Asst. P. Also Res. M.O. £200.
Northampton General Hospital.—Hon. Surg. to Ear, Nose, and Throat Department.
Royal Army Medical Corps.—Commissions.
Royal Free Hospital, Gray's Inn-road, W.C.—Asst. P.
St. Bartholomew's Hospital, Venereal Dept.—Pathologist. £300.
St. Peter's Hospital, Henrietta-street, Covent Garden, W.C.—Clin. Assts.
Salford Royal Hospital, Manchester.—Res. Surg. O. £200.
University College Hospital, Gower-street, W.C.—Tuberculosis O. £300. Radiographer.
Walthamstow, Wanstead, and Leyton Children's and General Hospital.—Res. H.S. £150.
West London Hospital, Hammersmith-road, W.—H.P., H.S., Aural H.S., and Res. Cas. O. Each £100.
Wigan Infirmary.—Third H.S. £150.

The Chief Inspector of Factories, Home Office, London, S.W., announces vacant appointments at Beccles (Suffolk) and Lynton (Devon).

Births, Marriages, and Deaths.

BIRTHS.

HEALY.—On Nov. 26th, at West View, Paignton, the wife of Dr. Healy, of a son.
LANKESTER.—On Nov. 28th, at Green Trees, Smith-lane, Bradford, the wife of Ralph Lankester, M.D., of a son.
WELLS-COLE.—On Nov. 30th, at Minster-yard, Lincoln, the wife of Dr. Wells-Cole, of a son.

MARRIAGES.

ARCHER—ASHWEEK.—On Nov. 29th, 1923, at the Garrison Church, Shoeburyness, by the Rev. L. Alford, C.F., George Eric Archer, M.B., Ch.B., second son of the late Rev. George Archer and Mrs. Archer, of Huddersfield, to Frances Kate, daughter of Captain and Mrs. W. F. Ashweek, of Shoeburyness.
FYFFE—LEETHAM.—On Nov. 27th, at St. James's Church, Piccadilly, Major Eric Leigh Fyffe, M.B., B.S. Lond., R.A.M.C., to Florence Evelyn (Eve), second daughter of Mr. and Mrs. Alfred Leetham, of Shelley, Holgate, York.

DEATHS.

ELAM.—On Nov. 30th, at New Barnet, Herts, William Henry Elam, F.R.C.S.
LATCHFORD.—On Nov. 29th, at Normanhurst, Falmouth, Lieut.-Colonel John Latchford, R.A.M.C. (retd.), aged 78.
ORR.—On Nov. 21st, at Brand House, Ludlow, Shropshire, William John Orr, M.B.Glasg., F.R.C.S. Edin., aged 49.
POLLARD.—On Dec. 1st, at Devonshire-place, Birkenhead, George Wilfred Pollard, M.D., C.M.
THOMPSON.—On Nov. 28th, at Bombay, Francis Barrallier Thompson, M.R.C.S., L.R.C.P., late Chief Medical Officer, Cyprus.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

WORKS OF REFERENCE.

THE MEDICAL DIRECTORY.

THE Medical Directory for 1924 reaches us with even more than its usual promptitude; we received it before the month of November was out. The eightieth annual issue of this classic contains the well-known features with the little additions of arrangement and convenience which experience continues to suggest. The numerical summary of the medical profession shows a total of 47,608 names, being an increase of 1297 on the previous year—unprecedented during the last decade. This increase is divided among all sections of the Directory, being especially noticeable in Scotland and abroad; the number of names, however, in the Services section is slightly diminished. The preliminary chapter on British spas and climatic health resorts has been expanded to occupy 24 pages, with the addition of an index. The only new feature is the inclusion of a Directory of the Principal Medical Trades, occupying four pages and including headings such as Abdominal belts, trusses, elastic stockings, and other surgical appliances; Chemists and druggists (manufacturing); Surgical instruments, hospital furniture, water beds, bedsteads, &c. In this section some of the names are indicated in grander type than others. The Late List of new names and changes of address has been transposed to the front of the Directory. All these things make for a useful work of reference which will, indeed, be almost ideal for its purpose when its editors see fit to reinstate the asterisk which for so many years differentiated between information known to be up-to-date and that which has not been subjected to recent revision. The Directory is published by Messrs. J. and A. Churchill and costs 36*s.* net.

THE MEDICAL YEAR BOOK.

We have received from Messrs. William Heinemann (Medical Books), Ltd., a copy of a new work of reference for 1924 intended to serve as a guide to the current activities of the medical profession in the United Kingdom. It is edited by Mr. Charles R. Hewitt, who was associated intimately for 38 years with the literary needs of medical men, first as assistant librarian of the Royal College of Surgeons, and later as librarian of the Royal Society of Medicine. His recent experience has been that of librarian and registrar at the League of Red Cross Societies in Geneva. The book opens with a calendar of forthcoming meetings, beginning with Oct. 1st, 1923, although the volume only reached us on Dec. 1st. There follow in orderly sequence details of the Ministry of Health, the General Medical Council, the Examining Boards, the University of London and its constituent schools, and a list of London specialists, followed by a similar information for other parts of England and for Scotland. In the lists of staffs of hospitals no distinction is made between those on the active and the consulting staff, and there are several ways in which this might cause inconvenience. Information is given of the various services including that of prisons. There is a register of medical societies—Ireland is included here but not elsewhere in the volume—and of nursing homes and nursing associations. Wills of medical men and charitable bequests are noted, and a complete list is given of medical works and pamphlets published in Great Britain during the year preceding publication. The names of current medical periodicals are set out, with prices and address of offices, and libraries where they can be consulted are indicated. The inclusion of days and hours of attendance at the chief London hospitals is another time-saving device—in this case it is the patient's time that can be saved. An adequate index renders cross-reference easy. We commend the general arrangement of the academic section of the book without hesitation, since it follows the familiar model of the annual Students' Number of THE LANCET. Mr. Hewitt modestly admits omissions on the ground of the complexity of the work and it would be churlish to complain of these. But we should like to see included those elusive names of the staff of the medical department of the London County Council and those of provincial medical officers of health, although no doubt some of them appear under the heading of hygiene specialists. We miss the mental deficiency hospitals of the M.A.B., and any mention of such useful matters as medical defence and hospital savings associations. It seems a little questionable whether the panel system does actually now "do away with the need for a capital sum at the outset" of a medical career. Every name appearing in the medical records of the book is that of a legally qualified and registered practitioner, but Mr. Hewitt has included in a trade directory (which is numbered and indexed as part of the volume) a list of osteopaths and bone-setters which will prove more useful to the pre-patient and perhaps to the discontented ex-patient than to the medical man himself, who might have been grateful for a list of experienced manipulators willing to act under his personal guidance. The Year Book is concise and pleasant to handle, and is a welcome addition to our works of reference. The price is 12*s.* 6*d.*

THE MEDICAL WHO'S WHO.

To the Editor of THE LANCET.

SIR,—I should be grateful if you would permit me to remind practitioners who have not returned their forms to do so immediately as the seventh edition of the Medical Who's Who (1924) is being passed for press. May I repeat that cuttings from, or mere references to, other publications cannot be accepted (unless re-written on the special form provided) without infringement of copyright. In some instances forms have been received with either no name or merely initials and with no address; such, obviously, cannot be printed. If forms have been lost or mislaid another can be sent on receipt of stamp.

I am, Sir, yours faithfully,

THE EDITOR.

1, Chichester House, Chancery-lane, London, W.C. 2.

A BOOK FOR CHILDREN OF ALL AGES.

WE are indebted to Mr. Kenneth Walker and Mr. Geoffrey M. Boumphrey for discovering, reproducing, and interpreting certain pictures, "ill-drawn and perished with age," which are alleged by the very oldest tortoise at the Zoo to represent hitherto unknown events connected with Noah and his Ark. "The Log of the Ark" (London: Constable and Co. 1923. 7*s.* 6*d.*) includes an account of the world before the flood, of the coming of the rain, and of the arrival of the birds and animals. The first day on board, the difficulties about baths and breakfast, and the daily life in fine and in dirty weather are described in happy and fantastic vein. But under all the disconnected episodes, described in a whimsical style reminiscent now of Carroll, now of Kipling, runs a connected argument which is both original and dramatic. "Many years ago when the world was new and clean" luscious fruit formed the staple diet of all living creatures. But after the flood the world which gradually reappears to the animals peering anxiously from the Ark is stark and barren of vegetation. During the weary hours on board a subtle and malignant influence, embodied in the "scub," has been causing unrest by anticipations of the commissariat difficulties that will arise in the new world, and by hints at horrible ways in which these might be solved. New desires, fears, and suspicions pervade the Ark, and at the last it is a worried and uneasy Noah who, with the help of the competent Japhet and Ham, organises the disembarkation. Children too young to be stirred by this sinister change of atmosphere will be entranced by the designs on the paper wrapper and elsewhere, and by the accounts of the adventures of the Luminous Puffkins, the Clidders, and not least the Wumpetty Dumps. It is, indeed, a book for children of all ages.

SCOTTISH RESURRECTIONISTS IN 1825.

A CORRESPONDENT writes: The paragraph on Body-Snatching and Murder, under the general heading Medicine and the Public in the Centenary Number of THE LANCET (p. 699), calls particular attention to the Burke and Hare episode in the life of the Edinburgh anatomy schools. Body-snatching in Scotland was no new thing when in October, 1826, 33 human bodies in casks, labelled grimly "Bitter Salts," were discovered on the quays at Liverpool. They were destined for the Edinburgh anatomists, but it would be unfair to infer that those distinguished men drew their supplies from England alone. Burke and Hare conducted their operations in Edinburgh itself, where, till they were apprehended in 1828, they supplied Knox's anatomy school with a succession of corpses. Scotland stood in great fear of the resurrection men, and this is manifest in the stern old Greyfriars Churchyard, Edinburgh, where the "mortsafes" or barred tombs add to the general gloom of the scene, or in the burial ground at Crail, where there is a house "for securing the dead." Scotland, indeed, would seem to have encouraged the resurrection men in their gruesome trade, partly because her anatomy schools have always been famous and then lacked material for human dissections, partly also because her kirk-yards were often far removed from human habitation and unprotected. In the far past her lonely dead were dug up by the swarming wolves, and this probably led to the burials in lake islands. Tradition records this custom to account for the burials on the Isle of Handa, off the coast of Sutherland.

"There are plenty of subjects to be got here in the Highlands," writes Dr. A. C. H. to Joshua Brookes, who was collecting material to form his anatomical museum in 1825, "for there are churchyards without churches and very distant from any house." The passage suggests: "There's a pump: don't put him under it." The letter, if published, might certainly have become an incitement to a system of

body-snatching, but Brookes seems to have kept it to himself. It remains in dim and dirty-looking manuscript. "I should suppose also," continues the writer cheerfully, "that from the great bodily exertion which the Highlanders are accustomed to in climbing their mountains, they will be capital subjects for demonstrating the muscles. Besides, the facility afforded for conveyance by steamboats" (then a new invention, which could be put to various uses) "is such that nothing would be more easy than to supply the whole London school from this quarter." It would be interesting to know whether, before the Anatomy Act of 1832, there were indeed any Highland corpses in the London dissecting rooms. That foreign visitors to, or denizens of, London were sometimes the victims of the resurrection men is sufficiently proved by the case of the Italian boy, Carlo Ferrari, murdered by Bishop and Williams, and brought to Partridge's dissecting-room in 1831.

Joshua Brookes was in constant communication with the resurrection men, from the "civil and well-conducted" Mr. Naples, author of the "Diary of a Resurrectionist," the original of which is in the library of the Royal College of Surgeons, to the very desperate ruffians, some 200 in number, who formed the rank and file of the body-snatching brigade. He quarrelled frequently with these men, apparently refusing them—for he was scarcely a rich man, though a very busy anatomical teacher—the douceurs and bribes they periodically demanded. Brookes's London sources of supply being thus unsatisfactory and his need for subjects great, he may possibly have thrown out hints to his distant correspondents that he would be glad of a supply from their parts of the country. Hence, perhaps, the curious letter quoted above and dated in a non-committal manner "West Highlands."

THE HEAD TROPHIES OF THE JIBARO INDIANS.

IN November, 1922, Sir John Bland-Sutton, in an address delivered before the Royal Society of Medicine,[1] called attention to the shrunken heads which constitute the war trophies of the Jibaro Indians. An account of these remarkable objects has just been published by Dr. Rafael Karsten in a paper on Blood-Revenge, War and Victory Feasts of the Jibaro Indians of Eastern Ecuador.[2] Dr. Karsten has added a number of details to our previous information, both as to method of preparation and the beliefs and ceremonies which are connected with these heads.

As regards the method of preparation, the head is severed as near the trunk as possible. A ceremony then takes place in which the head is placed on a leaf of a species to which magical properties are ascribed, and covered with another. The taker of the head then places himself on this "seat," and juice of tobacco and saliva are blown through his nose by the chief. If more than one warrior has participated in the taking of the head, all go through the ceremony in turn. This is to protect them against the revengeful spirit of their slain enemy. The preparation of the head then begins. The skin is slit at the back of the head from the apex downwards, and is carefully stripped from the skull. The skin is then attached to a vine and boiled. A ring of creeper is made for the neck, and the back of the head sewn up with thread. The actual reduction is effected by means of hot sand introduced at the aperture of the neck, but before that is done, the shrinking is begun by the use of three stones heated in a fire and introduced each in turn into the head and rolled to and fro within it. The object of this is to mortify the soul of the killed enemy, which is believed to be attached to the scalp, and keep it at bay. That this process is purely ceremonial is shown by the fact that it is repeated later at the great feast (which every taker of a head has to give) when it can have no practical aim. In the process of reduction sand heated in a piece of broken clay is poured into the head until it is half full. The head is kept in motion so that the sand may act equally on all parts. This removes the flesh, thins the scalp, and reduces the head. When the sand cools it is poured out and the inside of the head is scraped with a knife to remove the charred matter. This is repeated until the head is reduced to the size of an orange. While the process is going on, the head and features are moulded by the hand to retain their human semblance. Three small pins of *Chonta* palm, painted red and wound with red-painted cotton, are passed through the lips, but these are replaced at the great feast by three red-painted strands of cotton. Lastly, the whole face is dyed with charcoal. Particular attention is paid to the hair, which may be half a metre long. It is the most essential part of the trophy, and is believed to be the seat of the soul. At each stage of the preparation of these shrunken heads there are appropriate ceremonies which serve to throw light on the mentality and beliefs of the Jibaro. The head itself is an object charged with supernatural power. The pins or string passed through the lips are explained by the Indians as designed to prevent the heads from cursing them—an explanation alluded to by Sir John Bland-Sutton—but it is more than probable that their real aim is to keep the "soul of the enemy under magical control."

The heads of enemies of another tribe only are taken. The shrinking of a head to form a war trophy is a deadly insult to the whole tribe to which the victim belongs, and it is therefore explicable that they should avoid performing the operation upon anyone with whom blood kinship might be claimed. It is also significant of their stage of development that they take the heads of animals, in particular of the sloth and jaguar, and treat them in the same way. Their explanation of this is that all animals were once men—the sloth belonged to a tribe other than the Jibaro, and therefore was an enemy, and the jaguar was a sorcerer. When the animals were men they fought among themselves and made trophies of heads, and the Jibaro keep up the practice in the case of certain animals. It may be noted that the sloth is killed with a lance just as a man is killed, and the same purificatory rites are enjoined upon his slayer as would have been had he killed a human enemy.

[1] THE LANCET, 1922, ii., 995.
[2] Bull. 79, Bureau American Ethnology, 1923.

JEYES' VAPORISER.

THE Jeyes' Sanitary Compounds Co., Ltd. (64, Cannon-street, London, E.C. 4), in addition to their well-known and useful preparations of Cyllin, Lano-Cyllin, and Lysol (Jeysol), have produced a Vapor Jeyes for use in generating a non-poisonous and non-irritant vapour for the relief of catarrhal affections. The vapour may also be used for the disinfection of sick rooms and other similar purposes. The preparation is devoid of unpleasant odour and has a guaranteed Rideal-Walker coefficient of 8–10. For its use a simple, but effective, vaporiser is supplied consisting of a metal cylinder in which water is heated by means of a night-light, the Vapor Jeyes being placed in a shallow dish over the top of the water. The simplicity and portability of the apparatus are commendable.

THE LEITZ CATALOGUE.

FOR the excellence of their microscopes and microscope accessories Messrs. Ernst Leitz, of Wetzlar, enjoyed in this country before the war a great and well-deserved reputation. If they have been able under post-war conditions to maintain the level of their workmanship as they have maintained the level of excellence in their catalogue, they have done well indeed; for their new catalogue is praiseworthy both in substance and in form. To one small point exception may be taken. In discussing their high-power objectives they say "in the resolution of minute structural elements, where the image results solely from the effects of diffraction the numerical aperture plays a very important part." We should have thought that the exploded Abbé theory, from which its author receded before his death, had been, by this time, so much discredited by the criticisms of Rayleigh, Wright, and others that it could no longer serve even the purposes of advertisement. But Messrs. Leitz seem to think otherwise, and where it is a question of the market value of pseudo-science we cannot presume to set our opinion against theirs.

LIVINGSTONE COLLEGE.

IN the annual report of the College for 1922–23, which has just been issued, it is stated that during its 31 years' existence the College has trained 752 students (excluding those entering for short courses), of whom 482 remain at work. The greater proportion of the old students are working in parts of Africa, India, and China, where the invaliding and death-rates are the highest of any mission field. As indicated in the report in THE LANCET (1923, i., 1291) of the Commemoration Day gathering on June 13th, it is hoped that the College will take a by no means inconsiderable part in the application of new remedies for the amelioration and cure of leprosy. The Committee noted with satisfaction Sir Leonard Rogers's statement that the College could be of great use in training men and women to help in this work in districts where no doctor is available. The promise of a marked increase in the number of students during the year was not realised. Political unrest and commercial depression have lessened the resources in money of the missionary societies, and fewer recruits are being admitted and sent out. Sixteen missionary societies were represented amongst the students taking the course during the year 1922–23, when eight entered for the full session, six for six months, and eleven for three months or less. Twenty-three entered for the vacation course in July, from 12 societies, and, in addition, 37 students have taken the short course on "Personal Care of Health in the Tropics." The report includes notes written by former students now working in Bechuanaland, East India, Rhodesia, and Nigeria, testifying to the value of their short medical training at the College. The balance deficit of the institution has been reduced to £1109, but the Committee hope for continued and increased subscriptions, which should be sent to the Principal, Livingstone College, Leyton, London, E. 10.

SURGICAL RUBBER GLOVES.

FROM Messrs. J. G. Franklin and Sons, Ltd. (Birkbeck Works, Birkbeck-road, and 11–17, Colvestone-crescent, London, E. 8), we have received a sample of surgeons' rubber gloves which possess great strength and flexibility. They are seamless and the surface, while pliable and soft, is just sufficiently roughened to give a firm grip. Apparently no expense has been spared by the manufacturers in the production of the gloves, which are of British manufacture and made of the finest Para rubber. For surgical and post-mortem work they possess the qualities desirable in articles of this kind.

THE WELSH MEDICAL CURRICULUM.

WE have received from the Registrar of the University of Wales a copy of the calendar for the academic year 1923–24, containing amongst other things the text of the University charter, the names of authorities and office-bearers, the pass-lists of examinations for degrees, certificates, and diplomas in 1923. Physiology is now a final honours subject at University College, Cardiff, and a pass-list in medicine, surgery, and obstetrics appears for the first time; also for the first time there are lists of diplomates in public health and in tuberculous diseases. We learn that at a University Court, held in Welshpool on Nov. 23rd, the proposal to pledge medical graduates in the University of Wales by declaration to professional rectitude was carried by a large majority.

THE ST. DUNSTAN'S CLINICAL THERMOMETER.

WE have received a clinical thermometer in a special case which is sold under the name of St. Dunstan's Clinical Thermometer. It is made by Messrs. J. J. Hicks and Co. (8, 9, and 10, Hatton-garden) for the inventor and patentee, Dr. McDonnell, who has offered to devote half of the profits accruing from the sale to the funds of St. Dunstan's, an offer which has been accepted by the authorities of that institution. Notable features are that it has a special case which is not larger than that of the ordinary thermometer, but which is ingeniously made so as to contain any desired disinfectant and yet be non-leakable. The outer metal case is incomplete at one spot showing an inner glass tube which contains the disinfectant. Inside this glass tube is a small rubber band which protects the bulb of the thermometer by keeping it away from the sides of the case. The top end of the thermometer has a vulcanite cover which serves as the cap closing the tube containing the disinfectant. We have used the specimen sent to us, and have found it a satisfactory and convenient instrument. The price is 6*s.* 6*d.*

COLONIAL HEALTH REPORTS.

Gibraltar.

THE Colonial Secretary (Major C. W. J. Orr, C.M.G., R.A.), in his report for 1922, estimates the total civil population at 17,327, of whom 16,182 are fixed residents. These figures, it is explained, represent the population between sunset and sunrise; to calculate the daily population it would be necessary to add some 8000 aliens and 1500 British subjects resident in the neighbouring Spanish town of La Linea who come into Gibraltar daily. The birth-rate in 1922 was 22·67 and the death-rate 17·54 per 1000. The general health and sanitary conditions during the year were excellent, and, with the exception of an outbreak of influenza of a mild nature, there was no disease in epidemic form. The general climate is mild and temperate, though somewhat hot and oppressive during the months of July and August. The meteorological record for 1922 shows 70·6° F. as the mean maximum temperature, the highest shade temperature being 95° on August 7th and the lowest 42° on March 23rd. The rainy season spreads over the period from September to May; the annual average rainfall is 35 inches.

British Guiana.

A report for 1922, signed by Mr. G. Ball-Greene, Assistant Colonial Secretary, states that the colony remained free from epidemic disease and the general health was good. The estimated population on Dec. 31st was 297,817 (150,987 males and 146,830 females). The birth-rate was 27·8 and the death-rate 29·1 per 1000. The rates amongst the several races representing the community were:—

	Birth-rate per 1000.		Death-rate per 1000.	
Europeans other than Portuguese	7·9	16·6	17·0	24·2
Portuguese	19·7		26·7	
East Indians	28·1		32·7	
Chinese	28·4		22·6	
Aboringes	30·2		26·2	
Blacks	27·0		28·5	
Mixed races	33·3		19·3	

The climate is hot, but not unhealthy. The mean temperature throughout the year is 80·50° F., the mean maximum being about 85° and the mean minimum 75°. The heat, which is greatly tempered by cooling breezes from the sea, is felt most from July to October, owing to the partial cessation of these breezes. There are annually two wet seasons, from June to the end of August, and during December, January, and February. The annual rainfall for the past 72 years averages about 93 inches in Georgetown; in 1922 it was 104·41 inches.

Barbados.

According to the census taken in 1921 the total population of Barbados, the most easterly of the West Indian islands, was 156,312, of whom 10,429 were described as whites, 111,677 blacks, and 34,216 as "mixed." The following table shows the birth- and death-rates for the past five years:—

	Birth-rate per 1000.	Death-rate per 1000.
1918	38·02	25·95
1919	33·94	38·21
1920	37·07	32·90
1921	32·62	43·42
1922	34·33	22·41

There has hitherto been no registration of the causes of death in the colony, but the high death-rate recorded in 1921 is attributed to an outbreak of typhoid fever in that year. Barbados is reputed the healthiest of all the West Indian islands, and is much patronised by residents in the neighbouring colonies as a health resort. The anopheles mosquito is not found in the island. This is a somewhat curious fact, since it is certain that they must be imported not infrequently in vessels which in many cases lie in the "Careenage" or inner harbour for considerable periods, on arrival from places where they are prevalent. The conditions, however, are evidently unfavourable to their breeding ashore. The hot and rainy season lasts from the beginning of June to the beginning of November. The island gets the full benefit of the north-east trade-winds, and between November and May the night temperature sometimes falls as low as 64° F. For the greater part of the year the temperature is delightfully equable, and the heat is seldom oppressive. The winter months are regarded as the "tourist season." The average rainfall for 1922 was 54·55 inches, varying in different parts of the island from 42·87 inches to 70·90 inches in the higher lands. The heaviest fall in a separate month was in September—12·04 inches.

MECHANICAL APPLIANCES FOR CRIPPLES.

Mr. Gabriel Bidou is an engineer who has devoted many years to the perfecting of mechanical appliances which enable crippled individuals to stand and walk. Although primarily a mechanician, Mr. Bidou shows a due appreciation of the psychology of the cripple, and is not unmindful of the many effective mechanical devices which have been inspired or actually designed by members of the surgical profession. In a recently published little book [1] he has put together a useful account of the various materials employed in the construction of appliances, together with a description of accurate methods of measuring and fitting. As might be expected from a member of the author's profession, the whole problem is approached from a mathematical basis. A full description with illustrations is given of the various types of apparatus used by the author for patients suffering from paralysis, amputations, and deformities. The question of mechano-therapeutics and curative occupations is dealt with very fully. The book has an introduction by Prof. Babinski, who is obviously a great admirer of the work of this ingenious engineer. Its title is perhaps a little misleading, as we find some difficulty in admitting the author's claims that his methods are entirely "new." In this country, at least, appliances of a similar type have been employed by orthopædic surgeons for many years.

A. A. M.—Epilation by electrolysis appears to be harmless, and it can be rendered painless by local anæsthetic, but this is seldom given for the purpose as its action soon wears off, so that there is not time for removing many hairs. Scarring is very slight, and not noticeable unless a number of hairs close together, as in the ordinary beard or moustache, are all removed; then there remains a slight degree of puckering of the skin. Discoloration is not produced by electrolysis. It would be possible to epilate over a large area by removing one hair at a time, but the process takes an exceedingly long time. In actual practice electrolysis is advisable only in cases in which the hairs are stout and not close together; or in cases where there is a small bunch together, as seen, e.g., in some moles, or in some cases in which there are some more evident and dark hairs situated among finer ones—the more evident ones would then be removed. Fine hairs, even if long, are very difficult to remove permanently.

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[1] Nouvelle Méthode d'Appareillage des Impotents. By Gabriel Bidou. Paris: Les Presses Universitaires de France. 1923. Pp. 244 and plates. Fr.25.